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ABSTRACT

This five-volume directory describes almost 1,200 discretionary grants and contracts supported by the Research to Practice Division of the Office of Special Education Programs. The projects are grouped into five sections representing the seven program areas of the newly reauthorized IDEA, Part D. This volume, the fourth of the directory, describes projects concerning technology and media services. These projects are intended to: (1) support educational media activities that are designed to be of educational value to children with disabilities; (2) provide video description, open captioning, or closed captioning of television programs, videos, or educational materials; (3) distribute captioned and described videos or educational materials; (4) provide free educational materials, including textbooks, in accessible media for visually impaired and print-disabled students in elementary, secondary, postsecondary, and graduate schools; and (5) provide cultural experiences through appropriate nonprofit organizations. The projects are grouped by the competitions under which they were funded and include information on grant number, title, project director, beginning and ending dates, and contact information. An abstract describes the project's purposes, proposed methods, and proposed products. Four indexes

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are provided: a project director index, an organizational index, a state index, and a subject index. (CR)

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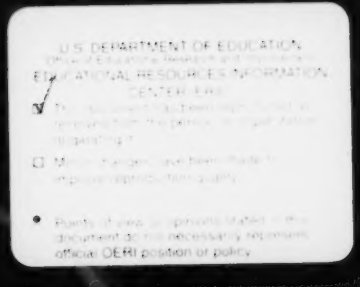
Discretionary Projects
Supported by the
Office of Special Education Programs
Under the Individuals with Disabilities Education Act

Fiscal Year 1998

TECHNOLOGY AND MEDIA SERVICES



U.S. Department of Education
Office of Special Education Programs
Research to Practice Division

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Discretionary Projects Supported by the Office of Special Education Programs Under the Individuals with Disabilities Education Act

Fiscal Year 1998

TECHNOLOGY AND MEDIA SERVICES

Prepared by
Ray Orkwis, Judi DeCarme, and Jeanne Glover
The ERIC/OSEP Special Project
ERIC Clearinghouse on Disabilities and Gifted Education
The Council for Exceptional Children

U.S. Department of Education, Office of Special Education Programs
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Technology and Media Services

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This directory, which is presented in five separately published sections, describes almost 1200 discretionary grants and contracts supported by the Research to Practice Division of the Office of Special Education Programs, which administers the discretionary programs authorized by the 1997 Amendments to the Individuals with Disabilities Education Act (IDEA). Some of the projects were funded under the provisions of the original IDEA, but for the purposes of this directory they are grouped into five separate sections representing the seven program areas of the newly authorized IDEA, Part D:

1: **Research, Innovation and Evaluation** (which covers two programs: *Research and Innovation* and *Studies and Evaluations*)

2: **Personnel Preparation**

3: **Technical Assistance, Dissemination, and Parent Training** (which covers two programs: *Technical Assistance and Dissemination* and *Parent Training and Information)*

4: **Technology and Media Services**

5: **State Improvement**

This section of the directory, "Technology and Media Services," presents projects that aim to: (1) support educational media activities that are designed to be of educational value to children with disabilities; (2) provide video description, open captioning, or closed captioning of television programs, videos, or educational materials; (3) distribute captioned and described videos or educational materials; (4) provide free educational materials, including textbooks, in accessible media for visually impaired and print-disabled students in elementary, secondary, postsecondary, and graduate schools; and (5) provide cultural experiences through appropriate nonprofit organizations, such as the National Theatre of the Deaf.

Within this section of the directory, the projects are grouped by the competitions under which they were originally funded. Access to the project information is enhanced by several indexes, which include:

- **Project Director Index**
- **Organization Index**
- **State Index**
- **Subject Index**

Please note that an extra digit has been added to the OSEP grant numbers to reflect the decade in which the grant was awarded. For the 1990's, the digit **9** has been inserted after the second alphabetical character in each grant number. For example, H023B70074 is now H023B**9**70074.

This directory is also accessible as a searchable database on the World Wide Web. The Uniform Resource Locator is **http://www.cec.sped.org/osep/search.htm**

If any errors are found in this material, please report them to the ERIC/OSEP Special Project (jeanneg@cec.sped.org) so that future editions of the directory and the database will be as accurate as possible.

(84.026A)
Closed Captioned Sports Programs

Grant Number: **H026A970002**

Provide Closed Captioning of Sports Events in Realtime

Project Director: Hansel, Michael

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

Real-Time Captioning, Inc.
16031 Sherman Way
Van Nuys, CA 91406
Voice: (818)376-0406

Purpose: This project will continue Real-Time Captioning's (RT) closed captioning of major sports events and enable the hearing-impaired community to participate in and enjoy sporting events, providing educational, social, and cultural benefits.

Method: RT proposes to caption approximately 800 hours of sports events, using existing equipment, facilities, and personnel, and ensuring that the project will be cost effective.

Products: In addition to giving hearing-impaired people expanded closed captioning of sports events, this project will help increase the popularity of this service. As the popularity increases, so will public awareness and interest in the private sector for continuation of this service.

Grant Number: **H026A970003**

Closed Captioned Sports Programs

Project Director: Ferrier, Patricia

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

Media Captioning Services
2141 Palomar Airport Road, Suite 310
Carlsbad, CA 92009
Voice: (619)431-2882

Purpose: This project of Media Captioning Services (MCS) aims to provide stenographic realtime and live display captioning services of sports programming on the Cable News Network's (CNN) national news programming.

Method: This project builds on MCS's expertise in captioning sports and sports news over the past seven years. The sports programming to be captioned airs on CNN's national feed and includes added sports coverage from the news reporters of Sports Illustrated, providing the most comprehensive sports news service in television.

Products: This project will allow MCS to maintain its current level of captioning of 495 hours per year of CNN sports programming to allow 70 million homes access to daily and weekend sports closed captioned news.

Grant Number: **H026A970004**

Closed Captioned Sports Programs

Project Director: Karlovits, Joseph R.

Beginning Date: Oct 1, 1997
Ending Date: Jan 30, 2000

VITAC
101 Hillpointe Drive
Canonsburg, PA 15317
Voice: (412)514-4000

Purpose: This project of VITAC, a major provider of captioning services, proposes to caption a variety of sports programs available to audiences on broadcast and basic-cable television.

Method: The project proposes to assure the quality captioning of over 3,400 hours of sports television programming over the three years of the grant. It will continue and expand the captioning of nationally televised programs which closely match preferences of the captioning audience. It will expand private-sector support for captioning by using federal funds as an inducement to increase funding support from program producers, and it will continue to seek input from the deaf community through its Caption Viewer Advisory Panel.

Products: The captioned programs developed by this project are virtually the only cultural experience which hearing and non-hearing members of the same family can share on equal footing. Through its use of private sector funding, the project will substantially increase the amount of captioned programming in a cost-effective manner, while the need for government funding decreases after the first program year.

Grant Number: **H026A970005**

Closed Captioned Sports Programs

Project Director: Karlovits, Joseph

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

VITAC
101 Hillpointe Drive
Canonsburg, PA 15317
Voice: (412)514-4000

Purpose: This project by VITAC will caption a variety of sports programs available to audiences on broadcast and basic-cable television.

Method: VITAC will caption over 3,600 hours of sports television over the three-year grant period and will continue and expand its captioning of nationally televised programs which closely match the preferences of the captioning audience. It will expand private sector support for captioned programming and will continue to seek input from the Deaf community through its Caption Viewer Advisory Panel.

Products: Closed captioned television is the primary source of news, information, and entertainment for many people, and virtually the only cultural experience which hearing and non-hearing members of the same family can share on equal footing. This project will continue to provide this cultural service to the hearing-impaired community.

Grant Number: H026A970007

Closed Captioned National Sports Programming to Benefit the Nation's Deaf and Hard-of-Hearing Population

Project Director: Orphan, Dave

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

National Captioning Institute
Office of the President 1900 Gallows Road, Suite 3000
Vienna, VA 22182
Voice: (703)917-7623

Purpose: With this project, the National Captioning Institute (NCI) assures the annual captioning of over 2,700 hours of nationally broadcast sports programming during the three years of the proposed project.

Method: Captions for programs will be provided verbatim using real-time captioning technology. NCI has developed private commitments to increase its efficiency and continue its work beyond the grant. NCI will continue its comprehensive, market-driven, firm fixed price approach for captioning all programs that are proposed.

Products: This project benefits not only people who are deaf or hard-of-hearing but also other groups, including children and adults with limited English proficiency, students learning to read, students with learning disabilities, and people for whom English is a second language.

(84.026C and 84.327C)
Video Description

Grant Number: **H026C970002**

Video Description: Narrative Television Network Broadcast and Cable

Project Director: Stovall, Jim

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

Narrative Television Network
5840 South Memorial Dr.
Tulsa, OK 74145
Voice: (918)627-1000

Purpose: This three-year project of the Narrative Television Network (NTN) will build upon its continuing services for blind and visually impaired children and adults by producing new television and movie programming as well as adapting pre-produced described programming to be delivered via home video.

Method: The project will produce and distribute accessible television and movie programming for home video use, using existing NTN personnel, studios, and programming agreements, as well as its affiliate base and ongoing base of operations.

Products: Videos will be made available for loan, rental, and purchase through video stores, libraries for the blind, groups and organizations that serve the visually impaired, NTN's lending library, and announcements on NTN's affiliate stations.

Grant Number: **H026C970004**

Descriptive Video Service: Describing Television Programs for Adults

Project Director: Joyce, Raymond

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

WGBH Educational Foundation
Descriptive Video Service 125 Western Ave.
Boston, MA 02134
Voice: (617)492-2777

Purpose: Through this project, WGBH's descriptive video service (DVS) will expand its programming to a national commercial network, while maintaining its presence on the Public Broadcasting Service, and a basic cable service, describing a minimum of 150 program hours for adults.

Method: Using focus groups, DVS will test its descriptions of network programming and classic movies. It will also seek corporate sponsorship to augment the grant-funded activities, thus expanding its outreach to blind and visually impaired persons. It will expand its campaign to educate the cable industry about the availability of described television programs (broadcast as well as on videotape) and to promote this

service to cable audiences. It will encourage television producers to begin including video descriptions in their budgets.

Products: This project intends to increase the range of available described video programming for blind or visually impaired television audiences—directly, through its descriptive video service and indirectly, through its efforts to expand into commercial broadcasting.

Grant Number: **H026C970005**

Descriptive Video Service: Describing Educational and Popular Home Videos

Project Director: Joyce, Raymond

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

WGBH Educational Foundation
Descriptive Video Service 125 Western Ave.
Boston, MA 02134
Voice: (617)492-2777

Purpose: WGBH's Descriptive Video Service (DVS) intends to continue making movies and educational programs on home video accessible to blind or visually impaired persons.

Method: DVS will describe a minimum of 45 new home video titles and promote another 164 described videos. It will work to expand the availability of these titles to retail video rental outlets as well as through free-access locations such as public libraries and direct mail. The grant-funded activities will be supplemented through corporate sponsorship and private foundation support.

Products: DVS intends to expand its outreach to blind and visually impaired persons with materials in accessible formats. It will encourage producers in the home video industry to begin including video descriptions in the budgets of their films and it will work to incorporate video description into the new digital videodisc format.

Grant Number: **H026C970007**

Descriptive Video Service: Describing Television Programs for Children

Project Director: Joyce, Raymond

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

WGBH Educational Foundation
Descriptive Video Service 125 Western Ave.
Boston, MA 02134
Voice: (617)492-2777

Purpose: WGBH's Descriptive Video Service (DVS) intends to make public, cable, and commercial children's television programs accessible to blind or visually impaired persons. DVS will expand to a national commercial network, while maintaining its presence on the Public Broadcasting Service and on a cable service provider.

Method: Through this project, DVS will provide narrative descriptions for a minimum of 150 program hours for children. It will seek corporate sponsorship and private foundation support to supplement its

grant-funded activities and it will encourage producers and funders of children's programming to begin including video description in their budgets. DVS will also encourage promotion of its services by cable providers.

Products: This project will help ensure that all children's programs described as a result of the grant will be made available through its home video service.

Grant Number: **H327C980001**

Video Description Projects Narrative Television Network Broadcast and Cable

Project Director: Stovall, Jim

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Narrative Television Network
5840 South Memorial Drive Suite 312
Tulsa, OK 74145
Voice: (918)627-1000

Purpose: Narrative Television Network Broadcast & Cable (NTN) will continue to provide accessible television and movie programming to blind and visually impaired Americans and expand its service through its new relationship with The Family Channel.

Method: Programming selections will be made from the widest selection of movies as well as network and syndicated television programming, taking into acount the limited number of hours of accessible programming for children and adults with visual disabilities. NTN selects a broad cross-section of dramas, comedies, musicals, classical theatre, and other types of television and movie programming. NTN's industry experts will help to evaluate the digital technology which is being developed as well as new technologies currently being produced.

Products: During the three-year project period, NTN will produce 900 hours of accessible programming (300 hours per year). Outreach and dissemination will continue and be expanded during the three-year project period.

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*Grant Number:*H327C980003

Expand Video Description on Cable Programming and Historic Public Television Events

*Project Director:*Joyce, Raymond

WGBH Educational Foundation
Descriptive Video Services
125 Western Avenue
Boston, MA 02134
Voice:(617)492-2777

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

*Purpose:*The purpose of this project is for WGBH-TV's Descriptive Video Service (DVS) to make television programs and home videos accessible to blind and visually impaired audiences using video description.

*Method:*Blind and visually impaired audiences will be able to access the video descriptions by selecting the Second Audio Program (S.A.P.) which is standard on most stereo televisions and video cassette recorders (VCR). There is no charge for viewers to receive this service. For home video, the description is recorded onto a special version of the tape, thereby making it an openly described tape, playable on any VCR. No special equipment is required. Described home videos are sold at the same suggested retail price as the version without description. Program selection will be based on consumer feedback and reflect the audience need for diversity.

*Products:*This project will result in an increased number of hours of television programming that include video description for visually impaired viewers. DVS will promote the project by providing promotional materials in large print and Braille; maintaining an audio information system, accessible by a toll-free telephone number; developing a World Wide Web site; disseminating information about the service to organizations serving the target population including schools, agencies and membership organizations; and informing people at blindness conventions, library conferences, and video stores. In addition DVS will ensure that captions from these programs are maintained for deaf and hard-of-hearing viewers. DVS will work with The Caption Center, another service of WGBH, on this effort.

(84.026D)
Educational Video Selection and Captioning

***Grant Number:*H026D970002**

Solicitation, Screening, Evaluation, Procurement, and Captioning of Educational and Special Interest Videos

*Project Director:*Stark, Bill

*Beginning Date:*Oct 1, 1997
*Ending Date:*Sep 30, 2001

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910
Voice:(864)587-1788
Fax:(864)587-1791

*Purpose:*The NAD will continue its program of screening, evaluating, captioning, and disseminating films and videos that provide enriched educational and cultural experiences for persons who are deaf and hard of hearing.

*Method:*The NAD will use its outreach program and capabilities in providing services for persons who are deaf and hard of hearing. Consumer input and careful monitoring of educational and technological innovations will permit the NAD to recommend appropriate adaptations to the Captioned Films/Videos (CFV) program to meet changing needs.

*Products:*This project is designed to generate increased usage of captioned titles made available through the CFV program and to meet the requirements of both changing needs and changing technologies as the CFV program advances into the next century.

(84.026E)
National Theatre of the Deaf

Grant Number: **H026E970001**

National Theatre of the Deaf Professional Training Program and Outreach

Project Director: Joslow, Jon

National Theatre of the Deaf
P.O. Box 659
Chester, CT 06 412
Voice: (860)526-4971

Beginning Date: Mar 27, 1997
Ending Date: Mar 26, 2000

Purpose: The National Theatre of the Deaf (NTD) proposes to conduct a series of programs that will provide for the development and broadening of the theatrical and general cultural range of the Deaf population in the United States. The NTD proposes to train Deaf and, on a limited basis, hearing actors and artists in a variety of theatrical production areas. The touring productions developed through such training will give the general population an increased awareness of the capabilities, skills, and artistry of the Deaf as well as an enhanced understanding and appreciation of deafness and Deaf culture. The training and the productions and projects developed as a result of such training are intended to promote cross-cultural understanding, help enable the Deaf and hearing populations explore ways to overcome communication barriers, and provide opportunities for the Deaf to participate in and contribute to society as a whole.

Method: The NTD will accomplish these goals through the implementation of the following: a professional training program in a variety of disciplines; the presentation of live performances for both adults and young people that will be performed in American Sign Language and the spoken word; outreach activities in education and the arts, including professional and technical assistance to regional and local cultural and educational programs; and the production of videotaped performances for distribution and, whenever possible, national and regional television broadcast.

Products: The NTD believes that there is inherent value in an established theatre company that develops and maintains a living language, ASL, as a unique art form. Live theatre, abetted by television, continues to be an important vehicle for breaking down the stereotypes that exist regarding minorities, in this case, those surrounding deafness and American Sign Language. With the efforts of the NTD under this project, hearing children and adults can be exposed to the artistry and professionalism of the Deaf, and Deaf children and adults throughout the U.S. can continue to have gifted actors as role models and as a source of pride and inspiration. The NTD is in a unique position to celebrate and disseminate ASL in this form and to explore the language as a teaching tool.

(84.026R)
Research on Educational Captioning

Grant Number: H026R970003

A Study of the Eye Movement Strategies Used in Viewing CaptionedTelevision

Project Director: Jensema, Carl

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

Institute for Disabilities Research and Training
2424 University Boulevard, West
Silver Spring, MD 20902
Voice: (301)942-4326

Purpose: This project will conduct two studies to address the questions: 1) What eye movement strategies do people use in reading captioned television?, 2) How do these strategies vary with different people and different types of material?, and 3) Can people be taught to use more efficient eye movement strategies when reading captioned television?.

Method: The first two questions will be addressed by a survey of the eye movement strategies used by a sample of 200 people. The third question will be addressed by a controlled experiment to determine whether a computer program designed to teach efficient eye movement strategies can significantly improve captioned reading skills.

Products: Captioned television is a major source of educational material for people who are deaf or hard of hearing. With a better understanding of how people's eyes scan this material, ways could be developed to train people to read captioned television with maximum efficiency and increase their comprehension of the material, which would have a significant impact on the education of children who are deaf or hard of hearing. The results of this project will contribute to the knowledge base that will lead to these understandings.

Grant Number: H026R970008

Adaption of Captioning: Standards for Digital Video Technologies

Project Director: Hofmeister, Alan

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 2000

Utah State University
Center for Persons with Disabilities
Logan, UT 84322-6800
Voice: (801)797-3718

Purpose: This project will strive to make multimedia materials more accessible by adapting captioning standards for digital technologies. By captioning multimedia technologies, more opportunities are allowed for equal access training without special provisions being made that further segregate the hearing

impaired. The National Association of the Deaf has been working with captioning service providers to develop preferred guidelines and styles for captioning.

Method: This project will explore methods of adapting captioning standards to existing multimedia programs for equal access to the hearing impaired. Digital technologies will be employed to address unresolved captioning problems such as captions that cover important information, inability to adjust font size, and pacing. These technologies can overcome these problems by providing captioning formats that can adapt to the learner's needs. When captioning is done in the onset and not as an afterthought, it can be designed for use by all learners.

Products: This project will develop captioning standards for multimedia captioning and create a multimedia captioning handbook for dissemination, helping to increase equal access to the hearing impaired.

(84.026S and 84.327S)
Closed-Captioned Daytime Television Programs

***Grant Number:*H026S950007**

Closed-Captioned Daytime Television Programs

*Project Director:*O'Connell, Trisha

*Beginning Date:*Oct 1, 1995
*Ending Date:*Sep 30, 1999

WGBH Educational Foundation
The Caption Center
125 Western Avenue
Boston, MA 02134
Voice:(617)492-9225

*Purpose:*To closed-caption and promote a variety of nationally televised daytime programs.

*Method:*This project will provide reliable, high-quality captioning services for approximately 675 hours of selected daytime programs available in syndication and on cable television. Three additional hours per day of daytime talk shows will be captioned, including "Jenny Jones, " "Ricki Lake, " and "The Montel Williams Show." Additional program choices will also be captioned during the mornings when the LIFETIME network airs its parenting programming. Additional programs and program hours will be selected with input from an advisory group of deaf and hard-of-hearing advocates, community leaders, educators and concerned citizens, as well as feedback from consumer interest surveys. These sources will also provide input on captioning style, availability, problems, and needs.

*Products:*In addition to provision of the above-described captioned programming, this project will conduct a promotional campaign to reach various segments of daytime television watchers. Press releases will be combined with personal contacts with major deaf and hard-of-hearing publications to publicize program availability and program descriptions.

***Grant Number:*H327S980002**

Closed Captioned Daytime Television Programming

*Project Director:*Kay, Lori

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

WGBH Educational Foundation
The Caption Center
125 Western Avenue
Boston, MA 02134
Voice:(617)492-9225

*Purpose:*This project will continue the success of the existing daytime programming closed-captioning cooperative agreement by ensuring that all programs currently captioned remain accessible. The project

will also broaden the number of channels and the types of programs made accessible while reducing the overall rate per program hour.

Method: The Caption Center will reflect program choices of deaf and hard-of-hearing viewers, utilize the highest quality captioning standards and professional experience, provide captions on 606.5 hours of programs each year, and offer an extremely competitive rate. The project will ensure a wide selection of programming in syndication and on 11 cable networks including: Bravo, The Discovery Channel, Home & Garden Television (HGTV), The Learning Channel, Lifetime, MTV, Odyssey, Sci-Fi Channel, The Travel Channel, USA Network, VH-1, and programming syndicated by Hearst Entertainment and the American Program Service. Through this project, The Caption Center is addressing a constant need among caption consumers: the still serious lack of captioning available on cable. The Center's Consumer Council feedback will continue to address and improve captioning methodology, style, delivery, and promotion.

Products: The major product of this project is captioning of 606.5 hours of programs each year. Results from this project will be made available, openly and without proprietary protections, to all interested parties—through direct broadcast satellites, pay-per-view, fiber optics, and other delivery media. Project staff will make every effort to ensure that the captions created for the initial release of the program will be made available for second releases such as home video or other broadcast venue. Recommended practice documents, including information on emerging standards of Digital Television, will be made freely available through the project's publications: Caption Center News, TechFacts, and the Consumer Information Series. Other dissemination efforts include: mailings, the World Wide Web, regional and national committees serving several communities which benefit captioning, presentations at professional organizations, and local outreach efforts initiated by project staff.

Grant Number: **H327S980004**

Closed Captioned Daytime Television

Project Director: Karlovits, Joseph

VITAC Corp.
101 Hillpointe Drive
Canonsburg, PA 15317
Voice: (724)514-4040

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Purpose: The purpose of this project is to assure the quality captioning televised daytime programming; to caption nationally televised programs which closely match preferences of the captioning audience; to expand private sector support for captioned programming by using federal funds as an inducement to increase funding support from program producers; and to continue to seek input from the deaf community through VITAC's Caption Viewer Advisory Panel.

Method: The project will provide the key elements in producing high-quality captions—appropriate staffing, advance research, quality-assurance procedures, state-of-the-art facilities, and refined captioning methods. VITAC will provide a minimum of 40% of captioned programming funding from producers and distributors and offers a three-year commitment of captioned programming funded by the private sector that represents 52% of the total hours. The project ensures that all daytime dramas currently captioned with support by federal funds will continue to be broadcast accessibly, such as "The Young And The Restless," "Days Of Our Lives," "The Bold And The Beautiful," "Sunset Beach," "Home Matters," "Men In Toolbelts," and "Next Door With Katie Brown." VITAC will expand captioned daytime programs to in-

clude a new offering from popular talk host Maury Povich. Universal Studios will agree to pay 40% of the captioning costs of the Povich program during the three-year project and it will be live encoded.

Products: The major product of this project will be captioning of approximately 3,939 hours of televised daytime programming over the three-year project period. To promote the project, VITAC publishes a quarterly newsletter called "Verbatim"; produces press announcements regularly carried in publications aimed at the deaf community and the television industry; obtains a media distribution list including more than 140 newspaper, magazine, television, and radio outlets across the country; and has a web site available to consumers (www.vitac.com) to inform the public of the programs captioned under this agreement.

Grant Number: **H327S980008**

Closed Captioned Daytime Programming Fox News Channel

Project Director: Ferrier, Patricia

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Media Captioning Services
2141 Palomar Airport Rd Suite 310
Carlsbad, CA 92009
Voice: (760)431-2882

Purpose: This project will provide deaf and hard-of hearing viewers with captioned, live breaking news during daytime hours, by supplying stenographic realtime and live-display captioning services from Fox News Channel news programming.

Method: The project offers cost-effective, quality captioning which will be provided at a cost of $166.06 per hour for federal funding. Viewers of Fox News Channel, which reaches almost 29 million homes, will have captioning of Fox's programming, which features in-depth live news coverage of world events during key daytime hours. Private sector contributions of $94,974 from Fox in year one and an additional $31,404 in year one from Media Captioning Services (MCS) represent a combined contribution equal to 26% of total project costs in year one to supplement federal funds.

Products: Continuous captioning will be provided from 9:00 a.m. to 5:00 p.m. weekdays, for a total of 2,080 weekday hours per annum. MCS will work with deaf organizations who have been supportive such as Self Help for Hard of Hearing People, Inc. (SHHH), A.G. Bell, and National Association of the Deaf (NAD) in disseminating information and providing feedback to MCS's consumer feedback consultant. MCS will make presentations at conventions; develop a World Wide Web site that will allow for customized quotations to be given to stations/video programmers for realtime captioning of their programming; and disseminate information about Captioning/Fox News Channel project activities though the Web page. Visitors to the Web site will be able to determine what events are being captioned on Fox News Channel and access live interviews with key decision makers, with links to Fox News Channel's home page to view a transcript and post guest comments.

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*Grant Number:*H327S980009

Closed Captioned Daytime Programming

*Project Director:*Ferrier, Patricia

Media Captioning Services
2141 Palomar Airport Road Suite 310
Carlsbad, CA 92009
Voice:(760)431-2882

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

*Purpose:*This project will provide stenographic realtime and live display captioning services on CNN (Cable News Network) daytime news programming.

Key features of this project include maintaining the captioning of 2,314 hours per annum of CNN's daytime programming, and expanding captioning by 130 additional weekend hours, for a total of 2,444 hours. Cost-effective, quality captioning will be provided at a cost of $142.81 per hour, 15% less than the previous cost of $168.71 to the federal government under the current daytime award and 38% less than the federal cost of $230.77 per hour six years ago. This project has obtained a combined private sector contribution equal to 20% of the total per annum project cost.

*Products:*Viewers of CNN, which reaches 74 million homes, will have captioning of 2,444 hours of CNN's daytime programming, featuring in-depth news coverage, live breaking news, and specialized daily reports on business, finance, medicine, and science. Media Captioning Services (MCS) will work with deaf organizations that have been supportive such as Self Help for Hard of Hearing People, Inc. (SHHH), A.G. Bell, and National Association of the Deaf (NAD) in disseminating information and providing feedback through the project's consumer feedback consultant. MCS will make presentations at conventions and will develop a World Wide Web page to allow for customized quotations to be given to stations/video programmers for realtime captioning of their programming. The Web site will provide capability for visitors to determine what events are being captioned on CNN, read summaries of significant events, view live interviews with key decision makers (with links to CNN's home page to view a transcript), and leave their comments on project captioning. Chat room capability will also be available.events, view live interviews with key decision makers (with links to CNN's home page to view a transcript), and leave their comments on project captioning. Chat room capability will also be available.

(84.026T and 84.327T)
Cultural Experiences for Deaf and Hard of Hearing

Grant Number: **H026T950001**

A Multimedia, Multicultural Arts Experience For Children And Youth Who Are Deaf, Hard-of-Hearing, And Hearing

Project Director: Sacchetti, Terrylene

Deaf Arts Council
3000 W. Olympic Boulevard
Santa Monica, CA 90404
Voice: (310)449-4067

Beginning Date: Nov 1, 1995
Ending Date: Oct 31, 1999

Purpose: To provide a multimedia, multicultural arts education experience for children who are deaf, hard of hearing, and hearing, utilizing the services of adults representing all three groups.

Method: The project will involve three major components: a school year program where artists teach at "Arts Learning Centers"; a day camp program for elementary students; and a residential camp program for junior and senior high school students. Through the Arts Learning Centers, 20-25 students per month from each of 10 elementary, junior, and senior high schools in Southern California will receive a minimum of two hours' instruction per month by a qualified artist/instructor. These sessions will involve a thirty-minute demonstration/instruction session, followed by a ninety-minute free expression period. Artist/instructors will provide children with tools and suggested activities designed to function as guides in the creation of new materials for the next month's lesson. These tools and activities will also be available for use by the students' regular teachers. Lessons will cover dance, theater, and visual arts, and will culminate after four months in a showcase of student work. The planned camp experience will provide five-week camps, divided into a five-and six-days per week children's day camp for elementary students and a residential camp for secondary students. Camp activities will include: storytelling; script writing; prop and costume selection and development; set design; videotaping; acting; relaxation and meditation; photography; and other aspects of literary, performing, and visual arts. Camp experiences will include field trips (including visits to television and film studios and sets). guest artists, and culminating performances/presentations.

Products: The project will be regularly evaluated by professional evaluators, using Likert-scale surveys to gather quantifiable and objective data. An extensive marketing and dissemination plan is proposed, to include the publication of a curriculum guide at the end of the project for arts education teachers in the public schools. This guide will include activities, tools, resources and procedures found to be most effective with the project's chosen population. Project staff will attend conferences with booths representing the Deaf Arts Council, and will publicize the project throughout the entertainment industry and deaf education community.

*Grant Number:*H327T980004

The Impact of Theatrical Experiences on the Total Development of the Child Who Is Deaf or Hard of Hearing

*Project Director:*Scherer, Patricia

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

International Center on Deafness and the Arts
3444 Dundee Rd.
Northbrook, IL 60062
Voice:(847)559-0110

*Purpose:*The purpose of this project is to provide training, knowledge, and skill development that will lead to enhancement of theatrical experiences irrespective of hearing status or cultural background. In addition, the project develops awareness and appreciation by the hearing public of artistic contributions to society by deaf and hard of hearing individuals.

*Method:*The following activities will be conducted over a three-year period: 1) an annual professional adult play with parts for children, such as "The Wizard of Oz"; 2) an annual children's play for children ages six years through high school; 3) a Participant Theatre, which presents a professional play, based on children's literature, that provides opportunities for children in the audience to participate and improvise and that provides learning packets (in English, Spanish, or braille) sent to target schools prior to the play; and 4) a series of workshops designed to teach children about American Sign Language and its artistic applications, as well as the artistic contributions to society by the deaf community. As a result of these activities, children are expected to receive: 1) training and role models in all aspects of theater by professional adults who are deaf, hard of hearing, and hearing; 2) development of cognitive, artistic, and social skills; and 3) knowledge of children's literature, American Sign Language, and its application to the arts as well as the process of appreciating and evaluating literature and the performing arts. Children and adults who are deaf and hard of hearing will participate in every aspect of the project. Children's play directors will be deaf and hard of hearing. The activities will occur in public, private, and residential schools in inner city and suburban areas, thereby providing the base for ethnic and cultural diversity. The Children's Theatre currently has African American, Asian, Indian, Hispanic, and Caucasian members.

*Products:*The primary products will be the plays, workshops, and learning materials. In addition, presentations will be given at state and national conferences to disseminate the results of this project.

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*Grant Number:*H327T980008

OPTICA: Our Path: Together Initiating Cultural Access

*Project Director:*Janes, Malisa W.

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

Illuminations . . . Theatre with the Deaf
1475 West Gray
Houston, TX 77019
Voice:(713)529-8692

*Purpose:*The "Our Path: Together Initiating Culture Access" (OPTICA) program unites all adults and children with hearing loss in artistic expression and creates accommodations media for communicating cross-culturally. The program fosters cooperation and learning for both American Sign Language and

Hard of Hearing people so that they can share their cultures as well as build teams to open doors to all arts/culture/heritage in the hearing community. "Total Accommodation" (interpreters, captioning, and assistive learning devices) is provided for every activity, and all populations with hearing loss are included so that they can learn more about each other and share in the experience and understanding of deaf culture. Total Accommodation products are created and disseminated by and for people with hearing loss to show the community how to provide complete access and to demonstrate their competency and creativity to the hearing community.

Method: The program has three developmental steps. The first step is to teach American Sign Language theatrical presentation to adults and children. Concurrently, there are classes in video filming to develop skills of adults and youth so that they can promote their events and culture. In addition, there will be a class for the non-actor in theater crafts (costuming, sets, lighting, etc.). The children's theater day camp, focusing on the arts, opens doors to the full diversity of children with hearing loss. Recreational activities are included, and a summer play climaxes the camp session. The children's camp is repeated each year with talented youth being encouraged to audition for "Illuminations" regular productions. In phase two, the theatrical classes become more advanced. Plays, awareness spots, access tapes for hearing theater and museums, and advertising videos are made and tested within the hearing loss community. The adults from the classes will "star" in the tapes and create a production for the community.

Products: In the last phase of the project, the advanced groups will take the "deaf-tested" videos to the hearing community for evaluation. Materials they develop and test will be disseminated within the community and nationally to demonstrate that there are cost-effective methods for providing accommodation to all people with hearing loss in all places at all times. Museums and theaters are the primary targets. Public television will air a play, written by a person with hearing loss. The participants (actors, directors, crew) will be people with hearing loss. Tape clips of activities that show OPTICA in action will be assembled and disseminated. A panel discussion about experiences in promoting access and cultural differences will be videotaped for public television.

Grant Number: **H327T980011**

Instant Theater Residencies

Project Director: Weir, Aaron; Thackaberry, Neil

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Cleveland Signstage Theatre
8500 Euclid Ave.
Cleveland, O H 44106
Voice: (216)229-2838

Purpose: The Cleveland Signstage Theatre (formerly Fairmount Theatre of the Deaf) will continue the "Instant Theater" Residency project by encouraging joint participation by individuals who are deaf and individuals who are hearing, both youth and adults, in the production and presentation of theater performances in high schools and community theaters. The goals of this project include the creation of a cultural opportunity for students and adults, deaf and hearing, to produce live theatre performances under professional direction; and the enhancement of self-worth of mainstreamed deaf students who attend regular schools.

Method: These goals will be accomplished through a series of workshops, classes, rehearsals, and performances conducted during two, eight-week residencies by Cleveland Signstage Theatre. The target population is primarily deaf students attending regular high schools. A secondary target is deaf adults in the same communities that host the chosen community theaters. The project will provide a cultural opportu-

nity for students who are frequently isolated from the general student population. The adults participating will have the opportunity to form new social contacts and to participate in an art form that has traditionally not been available to them. The results of the project will be an intense cultural experience for 120 students and 60 adults, and an opportunity for 1,200 students and 3,200 adults to see individuals who are deaf perform in local theater productions. The project also includes professional development for teachers, actors, and directors so that opportunities for deaf participation will continue after the project's completion.

Products: Documentation of the process will be both in writing and in video tape. A practical "how to" manual will be developed to assist other schools and community theaters in opening their operations to participation by individuals who are deaf. Private sector funds will be solicited for free distribution of documentation to other institutions and individuals; otherwise documentation will be made available for the cost of duplication and shipping.

Grant Number: **H327T980015**

A Comprehensive Program of Professional Sign Language Theatre Productions and Educational Outreach Workshop

Project Director: Waterstreet, Ed

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Deaf West Theatre Co., Inc
660 N. Heliotrope Dr.
Los Angeles, CA 90004
Voice: (213)660-0877

Purpose: The purpose of this project is to preserve and expand a comprehensive program of cultural experiences for deaf and hard-of-hearing adults and children. The primary objective is to provide deaf and hard-of-hearing artists and audiences of all ages a cultural home—a place to discover their talent; cultivate their skills; develop self-esteem and cultural pride through role models, training, and employment; explore current issues; and perpetuate deaf culture.

Method: The project will produce a minimum of two professionally produced plays per year and provide theatre education and drama experiences, such as a series of three 12-week drama workshops, for children enrolled in target school programs in southern California. Crucial to the program is the cross-cultural melding of deaf and hearing worlds and the inclusion of members of ethnic and minority groups. The project's school partnerships will be a mechanism for outreach to parents and individuals interested in children's theatre.

Products: The primary products will be the professionally produced plays and the drama workshops.

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*Grant Number:*H327T980019

Dreams to Sign

*Project Director:*Fogel, Bonnie; Yeh, Mary Gibbs

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

Bethesda Academy of Performing Arts Deaf Access Program
7300 Whittier Blvd.
Bethesda, MD 20817
Voice:(301)320-2550

*Purpose:*The purpose of the Dreams to Sign project is to expand the six-year foundation laid by the Bethesda Academy of Performing Arts (BAPA) Deaf Access Program, which provides quality cultural experiences by and for integrated deaf, hard of hearing, and hearing teenage performing arts companies and by integrated companies of deaf and hearing adults.

*Method:*Dreams to Sign will accomplish this via the following activities: 1) upgrading the production values of BAPA's teen companies' productions so that the videos will reflect qualities appropriate for wider dissemination; 2) producing videos of the performances and a documentary of the rehearsal process through a partnership with Stage II Communications; 3) creating an original play to be performed by an integrated professional adult company that will travel to schools and community venues on a year-round basis building public awareness by showcasing the artistic and intellectual achievements of deaf individuals; 4) disseminating information to others in a position to emulate BAPA's work with the deaf community through a partnership with Cable TV Montgomery and Sprint/Maryland Relay; and 5) providing quantitative data on the growth of public awareness as a result of this initiative by designing evaluation tools to test public reaction in three settings through a partnership with NOVA Research Company.

*Products:*Dreams to Sign will collaborate with Woodbine Press, who will publish a book titled Dreams to Sign as a result of this initiative. A World Wide Web page will be created and maintained to provide a constant, updated source of information on all aspects of the program. Sprint/Maryland Relay will utilize the Dreams to Sign documentary and production videos at their presentations to businesses, agencies, nonprofit organizations, and medical and health-related organizations; and the project will be promoted through Sprint/Maryland Relay "Today" quarterly newsletters. Training workshops on deaf culture, American Sign Language, and Sprint/Maryland Relay projects will be conducted. Videos of the teen company productions will be cablecast on Cable TV Montgomery and/or Montgomery Community Television.

(84.026U)
Closed-Captioned Television Programming

*Grant Number:*H026U961001

Closed Captioned National News And Public Information

*Project Director:*O'Connell, Trisha

WGBH Educational Foundation
The Caption Center
125 Western Avenue
Boston, MA 02134
Voice:(617)492-9225

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

*Purpose:*To continue provision of stenographic, real-time closed-captioning services for national news and public information programming.

*Method:*During the grantee's tenure as grant administrator, they have decreased the cost of real-time coverage by 62%, increased financial participation by networks and added participants PBS, FOX and C-SPAN, resulting in a 70% increase in the overall amount of captioned news and public information programming. This project proposes to include and expand on the initiatives of previous projects, including: early morning to late night coverage on participating national networks; round-the-clock coverage in emergency situations; all-day stand-by provisions for emergency programming on all participating networks; disclosure and distribution of technological improvements to networks and subcontractors to benefit caption customers and to streamline captioning operations; increase of captioned hours from 2,815 and 3,206, valuing refeeds at 1/8 of program length; and further reduction of the cost per captioned hour by 18%.

*Products:*The one-third network contribution originally introduced with this project will expand incrementally to 50% over the project's three years. Information about the availability of captioning services and captioned programming will continue to be disseminated via The Caption Center's periodical publications, mailings, presence on the World Wide Web, presentations at conferences, and local outreach activities.

Grant Number: **H026U961002**

Closed-Captioned National News & Public Information Programs

Project Director: Hutchins, Jeff

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

VITAC: Vital Access through Captioning
101 Hillpointe Drive
Canonsburg, PA 15317

Purpose: To caption a variety of national news programs available to audiences on broadcast and basic-cable television.

Method: Over the course of the project's three granted years, staff propose to assure the quality captioning of 712 hours of ABC News programs already being captioned, as well as 2,522 hours of special report and emergency coverage on ABC and 4,160 or more hours of CNN Headline News. Private sector funding has been secured averaging over 49% throughout the grant period. The project will also continue and expand the captioning of nationally televised programs which closely match preferences of the captioning audience, and will expand private-sector support for captioned programming by using federal funds as an inducement to increase funding support from program producers. Project staff will continue to seek input from the deaf community through VITAC's Caption Viewer Advisory Panel throughout the project.

Products: The Department of Education will be credited as a funder in closed captioned contained within each captioned program. Project activities will also be publicized through press releases and a special edition of "Verbatim."

Grant Number: **H026U961003**

Captioned National News And Public Information Programs

Project Director: Kirkland, Eric

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

National Captioning Institute
Office of the President
1900 Gallows Road
Vienna, VA 22182-3865
Voice: (703)917-7623

Purpose: To continue to provide deaf and hard-of-hearing Americans with closed-captioned, nationally televised programming.

Method: This project will manage the annual captioning of 780 hours of original, nationally-broadcast television programming in each of the three years of the grant. In support of this proposal, NCI has been able to develop private sector commitments to cover many of the operation's costs. The programs to be captioned in the first year of the project are "World News This Morning" and "Good Morning America" on the ABC television network. This proposal also marks the establishment of a comprehensive, market-driven, firm fixed price approach to captioning all proposed programs, as well as improvements in the efficiency and overhead management of NCI operations.

Products: Through this project NCI will support the National Education Goals by assisting those with disabilities in meeting Goal 1, School Readiness, and Goal 5, Adult Literacy. NCI public awareness activi-

ties include: toll-free numbers for consumers; ongoing research and development; press releases; World Wide Web and Internet activities; presence at national conventions; newsletters; and NCI's function as a clearinghouses for information on captioned television.

*Grant Number:*H026U961004

Closed Captioned National News

*Project Director:*Ferrier, Patricia

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

Media Captioning Services
2072 Edinburgh Ave.
Cardiff by the SEA, CA 92007

*Purpose:*To provide stenographic realtime and live-display captioning services of Cable News Network (CNN) national news programming.

*Method:*520 hours per year of CNN primetime programming will be captioned for the first time, providing in-depth news coverage, live news, and news from the entertainment industry. A private sector contribution from CNN will pay for 40% of the total cost. The programming mix selected for captioning will allow viewers to have uninterrupted continuous access to CNN news from 9:00 a.m. to 11:00 p.m. EST on weekdays by filling in schedule gaps currently not captioned.

*Products:*Project staff will actively disseminate information about project activities on articles for major Deaf organization periodicals. MCS will also work with Deaf organizations and National Advisory Council members to disseminate information about this project. Special logos and credits will be provided on-screen to identify the new captioned programming as well as the Department of Education's role in is development.

*Grant Number:*H026U962001

Captioned Syndicated Television Programming

*Project Director:*Kirkland, Eric

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

National Captioning Institute, Inc.
1900 Gallows Road
Suite 3000
Vienna, VA 22182
Voice:(703)917-7623

*Purpose:*To assure the annual captioning of 2,232.5 hours of nationally broadcast and cablecast television programming in each of the three years of the grant.

*Method:*Using NCI's Consumer Advisory Board as well as mail surveys, the project will assess viewing preferences of deaf and hard-of-hearing viewers. Published ratings services will be used to assess the preferences of the general public. Project staff will work closely with broadcasters to provide high quality yet cost-effective captioning of nationally televised programming. Backup systems will be provided

and maintained to ensure successful delivery of captions in case of national or regional emergencies. Procedures will be developed and implemented to monitor the achievement of full and accurate captions as part of an overall process of selection, training, telecast preparation, and quality assurance. These quality assurance data will be used to make further refinements in training and operations. The captioned television programming will be promoted and publicized to create greater awareness and to increase the audience size among the deaf and hard-of-hearing, as well as other groups that could benefit from the service.

*Products:*In addition to its captioning activities, NCI operates three full-time production facilities, maintains two toll-free numbers for consumers, acts as a national information clearinghouses, conducts research and development, and operates as a liaison between the deaf and hearing-impaired communities and the television industry. The project will be further publicized through press releases, a feature story in "Caption Update, " presentations at national conventions and a home page on the World Wide Web.

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*Grant Number:***H026U962003**

Proposal To Closed Caption Syndicated Television Programs

*Project Director:*Butler, G.

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

WGBH Educational Foundation
125 Western Ave.
Boston, MA 02134
Voice:(617)492-9225

*Purpose:*The Caption Center, a nonprofit service of WGBH Educational Foundation, proposes to closed caption approximately 600 hours annually of nationally syndicated television programming.

*Method:*Building upon past successes, the Caption Center will identify about 400 hours of so-called evergreen programs and 200 hours of continuing and current television series to be captioned. The Center's Consumer Council will help determine which syndicated programs contribute most to general education and cultural experiences of audiences.

*Products:*The Caption Center will caption over 600 hours of television programs cheaply and efficiently, stretching government dollars through private-sector funding. Program income generated from the sale of captioned files will be used to increase the number of captioned hours available. It will play a major role in improving captioning services and in transferring the process to other media. It will promote the benefit of captioned syndicated programs to the traditional deaf and hard-of-hearing audience as well as to an audience of those who are struggling with English as a second language.

Grant Number: **H026U962004**

Diversified Closed Captioning

Project Director: Woods, Jerry

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

RAPIDTEXT
230 Newport Center Drive
Suite 250
Newport Beach, CA 92660-7510
Voice: (714)644-6500

Purpose: To provide closed captioning services for television programs which will guarantee greater accessibility for individuals with hearing impairments, learning disabilities, and Limited English Proficiency.

Method: The project will rely heavily on the "Infosign" system, a unique technology developed by Rapidtext which allows realtime captioning to be shown simultaneously while live captioning is being produced. In partnership with the Discovery Channel, African Heritage Movie Network, the Geraldo Show, Country Music Television, and the United States Chamber of Commerce, Rapidtext and UVSC will close caption 916 hours per year of programming for three years. Simultaneous Spanish and English programming will be provided for selected programs using the two closed captioning channels available on most captioning decoders. Written Spanish and English transcripts will be available at no cost or minimal service fees through the Internet and World Wide Web where copyrights allow.

Products: Producers of captioned programming will advertise in television magazines and will provide national notification on the air that the programs are closed captioned. Project staff will provide notification to the deaf and hearing impaired communities through their regular contacts and customers as well as national and local publications reaching this audience. In addition, Rapidtext and UVSC will post information on the World Wide Web at sites popular with hearing impaired users.

Grant Number: **H026U963001**

Captioned Children's Television Programming

Project Director: Kirkland, Eric

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

National Captioning Institute, Inc.
Office of the President
1900 Gallows Road
Suite 3000
Vienna, VA 22182
Voice: (703)917-7623

Purpose: To assure the continued captioning of nationally broadcast and cablecast children's television programming and to further develop private sector funding commitments.

Method: This project will provide the highest quality captioning of nation ally televised children's programming during each of the three years of the grant period at a predetermined competitive market price. Project staff will work closely with broadcasters to ensure captioning of these programs without interruption, while accommodating unexpected changes in schedules. Backup systems will be provided and main-

tained to ensure successful delivery of captions despite national or regional emergencies. Procedures will be implemented to monitor the achievement of full and accurate captions as part of an overall process of selection, training, telecast preparation, and quality control; this data will be used to make refinements in training and operations.

*Products:*In addition to provision of captioning services, NCI will continue to engage in public awareness activities, including operation of three full-time production facilities, maintenance of toll-free numbers for consumer access, and ongoing liaison between deaf and hard-of-hearing communities and the television industry. Project activities will be specifically publicized through a feature story in Caption Update, national press releases, presentations at national conventions, and Internet services.

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*Grant Number:*H026U963002

Closed Captioned Children's Programming

*Project Director:*Karlovits, Joseph

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

American Data Captioning
VITAC
312 Boulevard of the Allies
Pittsburgh, PA 15221
Voice:(412)261-1458

*Purpose:*To caption a variety of children's programs available to audiences on broadcast television.

*Method:*The project proposes to caption 256.5 hours of children's programs for ABC and NBC over the three-year grant period. In addition to regular programming, programs on ABC will include 6 hours of holiday specials and children's movies, as well as five annual installments of ABC Afterschool Specials. NBC programming includes previous favorites as well as "Hang Time, " the story of a boys basketball team. Since these programs are not time-sensitive, VITAC will work directly with television networks to ensure that closed captions remain with program videotapes for additional future distribution.

*Products:*Project staff will publicize these expanded services through press releases and a special edition of "Verbatim" magazine. The Department of Education will be credited as a funder in closed captions within each captioned program.

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*Grant Number:*H026U963003

Closed Captioned Children's Programs

*Project Director:*O'Connell, Trisha

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

WGBH Educational Foundation
The Caption Center
125 Western Avenue
Boston, MA 02134
Voice:(617)492-9225

*Purpose:*To continue the successes of the Caption Center's existing cooperative agreement for closed captioning services for children's programming, and to further expand the list of project partners to include CBS' children's lineup as well as a small number of hours of children's programming on NBC.

*Method:*The Caption Center will caption 400 hours of the most popular programs for children, adding 118 hours of new programs on the basis of their popularity, availability, and feedback from both the audience and the Center's Consumer Council. Approximately 35 hours of programming will be made accessible through Cable in the Classroom, a cooperative project between cable networks and cable operators to bring commercial-free educational programming into classroom settings at no cost to schools. Project staff will identify programs suitable for fundraising, using private sector funding to increase the number of captioned hours available.

*Products:*In addition to captioning services, project staff will aggressively and creatively promote the benefits of captioned programming to deaf and hard-of-hearing audiences as well as children learning to read or learning to speak English. New production partners will be educated about the Television Decoder Act, as well as advances in line-21 technology and their implications for children's captioning. During the second and third project years, the program will plan an on-air project with CBS to promote the use of "easy reader" captions by deaf children, parents, and educators.

*Grant Number:*H026U964001

Captioned Movies, Miniseries And Special Programs

*Project Director:*Kirkland, Eric

*Beginning Date:*Oct 1, 1996
*Ending Date:*Sep 30, 1999

National Captioning Institute, Inc.
1900 Gallows Road
Suite 3000
Vienna, VA 22182
Voice:(703)917-7623

*Purpose:*To provide continued, high quality captioning of nationally broadcast and cablecast television movies, miniseries and specials in each of the three years of the grant.

*Method:*Project staff will work closely with broadcasters to provide high quality yet cost-effective captioning of cablecast and broadcast television movies, miniseries and specials. Backup systems will be provided and maintained to ensure successful delivery of captions in case of regional or national emergencies. Procedures will be developed and implemented to monitor the achievement of full and accurate captions as part of an overall process of staff selection, training, telecast preparation, and quality con-

trol. Findings from this monitoring process will be used to further refine training and operations. Captioned specials and movies will be promoted and publicized to create greater awareness and to increase the audience size among the deaf and hard-of-hearing, as well as other audience groups which could benefit from the service.

Products: NCI will continue to operate three full-time production facilities as well as maintaining toll-free numbers for consumers, acting as a clearinghouses for captioning information, and operating as a liaison between the television industry and the hearing impaired community. This project will be further publicized through press releases, a feature story in "Caption Update" magazine, and presentations at national conventions.

Grant Number: **H026U964002**

Closed Captioned Movies, Mini-series, And Special Programs

Project Director: Karlovits, Joseph

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

American Data Captioning, Inc.
VITAC
312 Blvd.of the Allies
Pittsburgh, PA 15222-1916
Voice: (412)261-1458

Purpose: To caption a variety of movies, mini-series, and special programs available to audiences on broadcast and cable television.

Method: This project involves captioning nationally televised programs which closely match preferences of the captioning audience; assuring the quality captioning of the programs; expanding private sector support for captioned programming by using federal funds as an inducement to increase funding support from program producers; and seeking input from the deaf community through a viewer advisory panel.

Products: The project will result in approximately 1,720 hours of captioned movies, mini-series, and special programs over a 3-year period. The project involves programming from Lifetime Television, Metro-Goldwyn-Mayer/United Artists, CBS, NBC, A&E Network, Fox, and Discovery. Captioning activities and programming will be disseminated and publicized through press releases, a special edition of Verbatim magazine, and funding credit given to the U.S. Department of Education during each captioned program.

Grant Number: **H026U964003**

Proposal To Closed Caption Movies, Mini-series, and Special Programs

Project Director: Apone, Tom

WGBH Educational Foundation
The Caption Center
125 Western Avenue
Boston, MA 02134
Voice: (617)492-9225

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

Purpose: To enable the captioning of an estimated 497 hours of movies, mini-series and specials programming per year.

Method: Captioned programming will include programs on networks CBS, USA, and NBC, the Arts and Entertainment network, the Sci-Fi Channel, Lifetime, and Turner Entertainment. A key goal of the project will be the identification and recruitment of multiple production partners creating movies, mini-series, and specials for participating networks. This process will provide access to advance materials, clear and frequent communication with production staff about last-minute changes, and establishment of high standards at all stages of the production process.

Products: In addition to provision of these captioning services, project staff will aggressively and creatively promote the benefits of captioned programming to deaf and hard-of-hearing audiences as well as children learning to read or learning to speak English.

(84.180G)
Technology, Educational Media, and Materials Research Programs that Promote Literacy

Grant Number: **H180G960002**

Promoting Literacy through Materials, Media and Technology Improvements in the Classwide Peer Tutoring Program: Research on the Effects of a Computerized Learning Management System

Project Director: Greenwood, Charles

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Beginning Date: Aug 1, 1996
Ending Date: Jul 31, 1999

Purpose: To investigate the benefits of integrating existing ClassWide Peer Tutoring research and products.

Method: A ClassWide Peer Tutoring (CWPT) Learning Management System will be developed using local area network technology to link and manage information, educational media to guide application and training, and other materials to support the peer-mediated curriculum. Within a three-year design, a prototype of this system will be investigated in terms of its effects on multiple indices of process, product, and user satisfaction when implemented in an elementary school. Participants and users will include 13 teachers and 325 students, including 65 with learning disabilities, behavior disorders, extreme mental retardation, developmental delays, and/or attention deficit-hyperactivity disorders. After testing the prototype using standard software development research designs, staff will validate the prototype in terms of: (a) teachers' implementation and satisfaction, and (b) students' literacy outcomes using single-subject, process-product, experimental research designs.

Products: The CWPT Local Management System software, manuals, media, and materials package will be disseminated to local education personnel via local districts, state education agencies, and the current CWPT publisher. Research findings will be disseminated via publications and presentations to special educators, technology researchers, and local education personnel. Graduate courses at Kansas University will include the procedures, results, and implications for practice of this project as part of their curriculum for preservice general and special educators.

*Grant Number:*H180G960004

Preventing Early Reading Failure by Enhancing Classroom Technologies: An Analysis of Peer-Assisted Learning Strategies, Computer-Assisted Instruction & Continuous Progress Monitoring in Primary General Education Classrooms

*Project Director:*Mathes, Patricia

*Beginning Date:*Sep 1, 1996
*Ending Date:*Aug 31, 1999

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*Purpose:*To restructure primary grade reading instruction to be more responsive to the needs of students with learning disabilities or students at risk for special education referral, while simultaneously enhancing the learning of all students in the classroom.

*Method:*In Year One staff will experimentally examine the effectiveness and feasibility of Peer-Assisted Learning Strategies (PALS) designed for first-grade students with and without computer-assisted instruction in phonological awareness. Participants will include 45 teachers and 225 children (135 who are at risk for special education referral or already labeled as having learning disabilities, 45 average-achieving, and 45 high achieving). This examination will continue in Year Two, but in this year staff will monitor how children are responding to PALS over time, using Curriculum-Based Measurement computer technology to help teachers identify students requiring additional help. Year Two will feature the same teachers and an identical student sample. In Year Three the project will focus on second grade, examining the impact of incorporating decoding skills instruction with older primary students. Second-grade PALS will be compared to the previously validated PALS procedures developed at Peabody College of Vanderbilt University. Additionally, staff will replicate efforts to have teachers make data-based instructional modifications for students making less than desired progress using computerized CBM technology. Participants in Year Three will include 40 second-grade teachers and 240 children (120 at risk for referral, 40 already labeled as having learning disabilities, 40 high achieving, and 40 average achieving). Students' social acceptance and feelings about their involvement in the interventions will be studied. Teachers will be surveyed concerning students' academic performance, class deportment and social behavior, and attitudes toward students with disabilities and reintegration.

*Products:*Manuscripts describing this project will be submitted to journals on special education, regular education, and school psychology, and conference presentations will be made to similar scholarly audiences. A training manual will be developed for dissemination, describing project procedures as well as strategies for facilitating implementation of these procedures. Through the School of Motion Picture, Television, and Recording Arts at Florida State University, a videotape illustrating critical features of the three PALS versions will be developed and used with conference presentations and as an adjunct to the manual.

Grant Number: **H180G960008**

Technology-Enhanced Learning Environments: A University and School Partnership for Development, Implementation, and Assessment of a Multimedia Literacy Curriculum

Project Director: Englert, Carol Sue

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Beginning Date: Aug 16, 1996
Ending Date: Aug 15, 1999

Purpose: To collaborate with teachers on the development, implementation, and evaluation of a curricular approach that uses multimedia technology to teach literacy skills as well as comprehension and composition strategies to elementary students with mild disabilities.

Method: In Study 1, researchers and special education teachers will implement and evaluate the effectiveness of a curricular approach that emphasizes knowledge-construction through the use of technology. Analyses will focus on effects of the curricular approach on students' literacy achievement, strategy knowledge, and self-perceived competence. In addition, researchers will examine the features and uses of technology that enhance or detract from the literacy performance of students. Participants in this study are expected to include four collaborating teachers, 44 experimental students, and 44 control students. Experimental students will mostly be students with learning disabilities, with small subsets of students with educable mental retardation and/or emotional impairments. In Study 2, the curricular approach will be revised and embedded in language or content area subjects to evaluate the effectiveness of the technological tools when they are infused into the general education curriculum. Pretest and posttest data will be collected on the performance of special education students, with specific attention paid to data on the extent to which the curricular approach can be incorporated as part of the "regular curriculum" and the relative effectiveness of the curricular approach employed in regular versus special education settings.

Products: A disseminable curricular approach will be made available to advance teachers' knowledge and practices related to the improvement of literacy instruction and learning of students with mild disabilities through technology use. Two computer software packages will be developed and refined through this research: HyperReports and Thematic Learning Logs. The project will also lead to the creation of CD-ROMs as library resources for students, a curriculum resource for teachers, and a database for research. By the end of the project, staff anticipate the publication of at least five research papers, six conference presentations, and three papers describing the curricular approach.

*Grant Number:*H180G960013

Caption Speed and Viewer Comprehension of Television Programs

*Project Director:*Jensema, Carl

*Beginning Date:*Sep 1, 1996
*Ending Date:*Aug 31, 1999

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*Purpose:*To explore the ability of viewers to read, understand, and retain the material presented in captioned television programming.

*Method:*Two studies will be done, one to explore understanding and retention of specific facts, the other to explore understanding and retention of overall story narrative. Both studies will select specific material to be taught, create testing procedures to measure understanding and retention of material, and create video segments with captioning at different speeds to present the material. Video segments from each study will be shown to approximately 240 subjects, and these subjects will be tested on their understanding and retention of the material presented. Test performance will be analyzed in terms of caption speed, age, degree of hearing loss, and other demographic and educational variables.

*Products:*The final report from this project will provide caption production companies with information to help them improve the quality of captioning by fitting caption speed to audience needs and ability. This report will be made widely available to the television industry and the Deaf/hard of hearing community. Conference presentations will be made in the areas of reading research, television, and hearing loss. At least three journal articles will be written and submitted for publication. Project staff will develop a mailing list of industry leaders and will distribute the final report and other materials to 400 of these key figures.

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*Grant Number:*H180G960018

Project LITT (Literacy Instruction Through Technology): Enhancing the Reading Skills of Students with Learning Disabilities through Hypermedia-Based Children's Literature

*Project Director:*Lewis, Rena

*Beginning Date:*Sep 1, 1996
*Ending Date:*Aug 31, 1999

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*Purpose:*To study the effectiveness of hypermedia-based children's literature in improving the literacy skills of students with learning disabilities.

*Method:*Five interrelated studies will be conducted. These studies will focus on characteristics of hypermedia-based children's literature in relation to students' learning needs, learning strategies employed by

students with learning disabilities in interaction with this type of software, types of instructional supports needed to maximize reading gains students receive from this software, the effectiveness of the software in improving reading skills of children with learning disabilities, and the effectiveness of bilingual versions of this software in improving both English and Spanish reading skills of bilingual students with learning disabilities. Research designs and methodologies will vary from study to study depending on the questions under investigation. Data will be collected on such dependent variables as attitude toward reading and reading skills in the areas of phonological awareness, decoding, word recognition, and comprehension.

Products: Project results will be reported at national conferences; in professional journals; and through other means to assure dissemination to researchers, teacher trainers, families of students with learning disabilities, and practitioners in general, special, and bilingual education. Findings have the potential to alter the ways in which teachers teach literacy skills, and, thereby, the extent to which adults with learning disabilities are able to participate in society as literate citizens.

Grant Number: **H180G960022**

Captioning Instructional Videos to Improve Literacy

Project Director: Kirkland, C. Eric

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

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Purpose: To investigate the benefits of captioned videos for students with special educational needs in Grades 1-3.

Method: This project will implement a longitudinal study commencing with Grade 1 the first year and continuing through Grades 2 and 3 in subsequent years. At each grade level, a set of 30 videos will be prepared, with all classes at each grade level having their own sets of videos. In addition, each school will be provided with a set of videos to be shown in class as part of the language arts curriculum. Each student will be encouraged to take home one video per week to be viewed as a "talking storybook" or "video bedtime story." Activities and games will be developed to enable parents to participate in video viewing, and an exhibit will be set up at meetings of the parent teacher organization to reinforce the need for parent involvement. Throughout the three project years, staff will meet with various school personnel to provide training on the use of the videos, as well as log forms and other tools necessary to support data collection. Ongoing observations will provide baseline information and longitudinal data on the use of and attitudes toward instructional television among student and teacher participants. The participating school will be in a rural community serving many socioeconomically disadvantaged families, so it is hoped that many parents will also be able to improve their literacy through usage of the captioned videotapes.

Products: This project will result in 90 captioned videos with accompanying activities and assessments for integrating them into early intervention programs for Grades 1-3. Project staff will also publicize the project through articles in professional journals and presentations at national conferences.

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*Grant Number:*H180G960029

Functional Literacy for Decision-Making: Personal Computers as Metacognitive Tools for Youth with Mild/Moderate Mental Retardation

*Project Director:*Keating, Thomas; Gersten, Russell

*Beginning Date:*Dec 1, 1996
*Ending Date:*Nov 30, 1999

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*Purpose:*To conduct qualitative and quantitative research to determine the effectiveness of this personal information management software in providing experiences and opportunities that improve the functional literacy of students with developmental disabilities, and to understand factors that enhance or impede application of this technology.

*Method:*The proposed software is a graphically driven prototype providing youth with developmental disabilities with a personal information manager to help them organize personal activities, arrange their schedules, anticipate conflicts, select among alternatives, and coordinate with others. In Study One staff will conduct focus groups with teachers and families followed by a pilot experiment. This pilot study will refine and customize the software and training procedures, and will provide specific information on how teachers and parents can help students use the technology. In Study Two, staff will investigate effects of software use within a formal high school life skills instructional program, with separate groups of students using the software both at school and at home. Data will be drawn from a range of outcome measures of learning and psychosocial factors related to using assistive technology, as well as an in-depth qualitative study focusing on changes experienced by students and the perspectives of support staff.

*Products:*Products will include a further refinement of software tools for functional literacy and a set of training and instructional procedures for teaching and supporting youth with developmental disabilities in the use of assistive technology. Staff will disseminate project products and findings in a variety of alternative formats, including worldwide web publishing, cassette tapes, and video. Data design specifications will also be compiled for use by developers and curriculum designers in crafting computer-based technology products that will promote the inclusion and computer literacy of youth with mental retardation.

Grant Number: **H180G970001**

Video Feedforward To Promote Reading, Communication, and Effective Judgments by Young Children with Disabilities

Project Director: Dowrick, Peter W.

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Beginning Date: Feb 21, 1998
Ending Date: Aug 31, 1999

Purpose: To explore the effects of individual video feedforward on literacy outcomes for children in a tutored reading program.

Method: During the first project year, all students in second grade in the two participating schools will be screened for learning disabilities and attention deficit/hyperactivity syndrome, and eight will be identified for "extended pilot" testing of protocols for the Reading Rescue program, including eight weeks of tutored reading practice and selected video interventions. After refinement of these procedures, a second cohort of children in grades 1 and 2 with reading problems will be brought into the study. Students in the feedforward group will receive an individualized self-modeling video of themselves reading fluently and coping with the frustrations of reading difficulties. Students in a practice group will observe a video of a child in the same grade practicing reading. Both of these groups will receive structured reading practice assignments from community aides, who will have been trained using a demonstration video and tutoring sessions. The remaining students will be monitored in a waitlist group. In Year Two 35 more students will be added to the study, and will be assessed, assigned to groups, and offered services in similar fashion to the first year. Staff will collect video footage and other material to begin the packaging of training, and selected school staff will be trained to continue project procedures after funding ends. In Year 3, 15 students will be added, and all waitlisted students will be offered services before the project ends. Additional formative case study interventions will be developed around students with attention deficits. Staff will complete data collection, analyze and report results, and begin dissemination.

Products: Articles describing project results will be published in major education and disability-related journals. Staff will conduct workshops in another state to facilitate replication at another site. The program itself will be packaged for replication, assisted by a major publisher.

(84.180T)
Technology, Educational Media, and Materials Projects that Create Innovative Tools for Students with Disabilities

Grant Number: **H180T970007**

Monitoring Authentic Problem Solving: MAPS for Enhancing Outcomes for Students with Disabilities

Project Director: Fuchs, Lynn; Fuchs, Doug

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Beginning Date: Sep 1, 1997
Ending Date: Aug 31, 1999

Purpose: In Project MAPS (Monitoring Authentic Problem Solving) for Enhancing Outcomes for Students with Disabilities, multimedia, computer-managed assessment environments will be created, tested, and disseminated to help the students overcome barriers relating to problem-solving performance assessment. The project-developed systems comprise multimedia presentations of problem situations and interactive dialogues by which problem-solving performance is scored, interpreted, and matched to instructional recommendations.

Method: MAPS helps remove existing barriers for students with disabilities by relying on multimedia presentations of problem-solving situations and by using response formats which avoid text and more accurately estimate problem-solving capacity for students with disabilities. Students are scored and their problem-solving performances are interpreted automatically to provide ongoing feedback and to produce concrete and feasible teaching recommendations matched to individual needs. Forms will be developed to apply a core set of problem-solving skills and strategies at each of five academic instructional levels and for each of four functional life skills themes and to provide the students with opportunities to practice their skills.

Products: The project will produce, test, and disseminate a teacher training manual and video for preparing students with disabilities to interact with the multimedia system, for helping teachers interpret problem-solving performance assessment feedback, and for helping teachers to understand and implement the instructional recommendations. A developer's blueprint will document and explain the process for developing similar multimedia assessment environments in related domains.

Grant Number: **H180T970035**

Active Accessibility Guide Toolkit

Project Director: Morford, Ronald

Beginning Date: Sep 1, 1997
Ending Date: Aug 31, 1999

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Purpose: The goal of this project, the Active Accessibility Graphical User Interface Descriptive Environment (GUIDE) Toolkit, is to design, develop, and test custom software that significantly increases the number of Windows 95 and Windows NT application programs that are accessible to visually impaired people, thereby increasing educational and business opportunities.

Method: The project will use a new set of protocols from Microsoft called Active Accessibility in order to make many off-the-shelf inaccessible applications immediately accessible to computer users who are visually impaired by reading the screen information and sending it to a voice synthesizer. For programs that cannot be made immediately accessible, a software Toolkit will enable computer vendors to enhance their software to make it accessible. The research team at Automated Functions, Inc., working with an advisory committee comprised of visually impaired professionals, special education teachers, and visually impaired college field test students, will work together to design, develop, and test the software that will become the Active Accessibility GUIDE Toolkit.

Products: The result of this project will be software that will make thousands of inaccessible Windows 95 and Windows NT application programs accessible to visually impaired students and business professionals. The Graphical User Interface will increase with time, and visually impaired people will continue to need excellent tools in order to independently interact with this growing technology and maintain and increase their educational and business opportunities.

Grant Number: **H180T970046**

Realtime Captioning for Remote Classrooms: A State-of-the-Art Learning Environment for Students with Disabilities

Project Director: Fifield, Bryce

Beginning Date: Sep 1, 1997
Ending Date: Aug 31, 1999

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Purpose: This project will develop and demonstrate technology for providing real-time captioning for remote classrooms. Using the Internet as a pipeline for information to and from the classroom, the project will combine existing technologies to allow remote captionists to provide real-time captioning of distant classroom events, discussions, and presentations.

Method: Audio from the classroom will be captured with microphones and sent using audio software over the Internet to a captionist in another location. The captionist will transcribe the audio with stenographic captioning equipment and feed it back to the classroom where it will be displayed on a television monitor or an overhead projector.

Products: In addition to developing the captioning system, the project will evaluate its performance in terms of student outcomes, compatibility with classroom environments, and teacher and student opinion. Throughout the development process, project staff will work with potential marketing partners to evaluate the labor market, alternative low-cost versions of the system, and consumer responses to prototypes.

Grant Number: **H180T970051**

Multimedia + Math Word Problems + (Deaf + ESL Students) = A Handy Solution

Project Director: Andrews, Jean F.

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 1999

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Purpose: This project intends to use a multimedia approach to: (1) build overall mathematics skills and, specifically, problem-solving strategies for students with deafness or whose first language is not English; and (2) improve the skills of teachers of these students, many of whom lack certification and training in mathematics.

Method: The project will create innovative math story problems, at grade levels from 2nd through 6th, in Spanish, English, and American Sign Language using graphics and animation with multicultural children. It will also train math teachers of deaf children to write their own multimedia math word problems.

Products: The project's goals are aligned with national math standards for the deaf and with Goals 2000, and the expertise of the project staff can produce software incorporating problem-solving strategies and graphics in appropriate formats. The software will be evaluated in classrooms with deaf children, distributed on the World Wide Web, and marketed commercially.

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*Grant Number:*H180T970058

Computerized Adaptive Testing for TCB

*Project Director:*Reiman, John

*Beginning Date:*Oct 1, 1997
*Ending Date:*Sep 30, 1999

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*Purpose:*The purpose of this project is to develop a computerized adaptive testing version of the Transition Competence Battery (TCB, an assessment tool designed to measure the transition skills of non-college-bound deaf adolescents). This instrument is composed of two content domains — vocational and independent living skills — and is designed to be administered in groups or individually. It is presented on video in conceptually accurate Pidgin Sign English.

*Method:*The defining characteristic of the TCB is its accessibility to students who rely on sign communication and who learn at different rates. The program is designed to choose appropriate items based on student responses. The resulting tailored assessment will reduce testing time, increase assessment accuracy, allow for individual pacing, and provide reports for the Individualized Educational Program.

*Products:*This project will help with both group and individual administration of assessment measuring the transition skills of non-college-bound deaf adolescents, a segment of the deaf population that is the largest and most in need of services to succeed in their transition to adult life. If the project is successful, it will seek a commercial publisher for the assessment model.

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*Grant Number:*H180T970059

Networking: A Tool for Teaching Motorized Wheelchair Operation in Virtual Reality

*Project Director:*Inman, Dean P.

*Beginning Date:*Oct 1, 1997
*Ending Date:*Sep 30, 1999

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*Purpose:*This project uses virtual reality simulation of a natural environment to teach children with physical disabilities to drive a motorized wheelchair, enabling them to actively and independently explore their environments.

*Method:*The project will upgrade the current virtual reality platform using newer and more efficient technology which provides more realistic graphics and eliminates the need for wearing a cumbersome head-mounted display, at one-third the cost of the original system. The system will be networked so that two participants, from remote locations, can interact in the same virtual environment, allowing the children to play and explore the virtual world with a companion. This feature should motivate children to stay on

task, work harder, and have more fun (all have been problems with such simulations), which will maximize their driving skill acquisition and allow the participation of children who cannot easily be transported to a central training center.

Products: Independent mobility provides an essential underpinning for cognitive, perceptual, and social development in children. When children with severe physical disabilities gain the functional skills to overcome the limitations in their environments, they increase their academic achievement and better adjust socially. The three phases of this project, when implemented, will upgrade the training system, network the system with another in place within the state, and evaluate the extent to which children can acquire driving skills in the real world as a function of training in virtual reality with a companion, all of which are expected to contribute to the academic and social development of students with severe physical disabilities.

Grant Number: **H180T970061**

Project Connect: Interactive Consultation Model for School Teachers to Benefit Students with Disabilities

Project Director: Huray, Paul

Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 1999

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Purpose: The purpose of Project Connect is to establish a rural consultation model that will provide resource information for teachers, parents, and students with special needs and direct access to experts. Desktop interactive video technology will be used to demonstrate a cost-effective approach to providing needed consultation to rural areas served by National Science Foundation designated hub schools.

Method: Using desktop interactive video for two-way audio and video communication to address local needs and maximize resources, Project Connect staff will mentor local teams to increase the leadership, technical assistance, and outreach capacities of participating schools. The site coordinators will collaborate with other schools interested in furthering teachers' abilities and responsiveness to apply this technology in innovative ways. The technology will enable participants to function independently and share in the electronic dissemination of materials and information.

Products: Project Connect will use desktop interactive video technology to provide access to needed experts and resource information for rural teachers, parents, and students with disabilities. Through the technology, individuals with disabilities will receive the tools and resources to achieve the outcomes desired for all students, including independence, productivity, and an improved quality of life.

Grant Number: **H180T970065**

TEChPLACEs: Technology in Early Childhood-Planning and Learning About Community Environments

Project Director: Hutinger, Patricia

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Beginning Date: Oct 1, 1997
Ending Date: Sep 30, 1999

Purpose: The major goal of TEChPLACEs (Technology in Early Childhood-Planning and Learning About Community Environments) is to provide an innovative process tool and a state-of-the-art instructional environment for children from 3 through 8 years of age with a wide range of disabilities across ages, classrooms, and locations, as children and teachers build their own communities, using a variety of media, to share with other classrooms, then engage in a collaborative effort among classrooms to construct a community together on an Internet site. Six entities will collaborate on the project: a technology component within the college of education of Western Illinois University, teachers in four school districts, and the local vocational system program.

Method: The initial component is an Internet site, a home page that contains project activities and procedures of the collaborative entities and progress reports from them. The second component will be the dissemination and marketing of the project. A collaborative community will be created that will include images, animation, games, text and sound, e-mail, resources, a bulletin board, chat rooms, and other user-friendly functions for participants. Finally, a CD-ROM will be developed containing documentation, media, procedures, source code, and a template to replicate the project in other locations with similar or different tasks, content, outcomes, and platforms.

Products: The project is designed to foster a state-of-the-art instructional environment that makes full use of the collaborative interaction and communication potential of the Internet and communication technology so that it can be accessed and used by children with disabilities, then replicated for use by others. Extensive dissemination, marketing, and evaluation are included.

Grant Number: **H180T970072**

That's the Job for Me! Production of an Interactive CD-ROM Job Exploration Program for Youth with Developmental Disabilities

Project Director: Morgan, Robert L.

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Beginning Date: Jan 1, 1998
Ending Date: Dec 31, 1999

Purpose: This project proposes to develop an interactive CD-ROM-based job preference program to provide youth with disabilities with access to a wealth of employment information so that they can make informed decisions.

Method: The project will develop, evaluate, and disseminate a career education and job exploration program, including a job preference assessment to provide youth and their families with realistic representations of jobs using video-based CD-ROM. Critical attributes of jobs commonly held or potentially attainable by youth with disabilities will be identified and a prototype motion-video CD-ROM will be developed based on these critical attributes. Field tests of the video will be made and the program disseminated to secondary special education, school-to-work, rehabilitation, and supported employment programs nationwide.

Products: Expected outcomes of the project are increased consumer-driven transition programs, heightened involvement of youth with disabilities and their families in transition activities, higher probability of placement in preferred jobs, potentially greater job longevity, and improved job performance.

Grant Number: **H180T970076**

Re:Search Organizer: An Innovative Tool to Support Students with Disabilities

Project Director: Corley, Patricia

Beginning Date: Nov 1, 1997
Ending Date: Oct 31, 1999

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Purpose: Re:Search Organizer is an innovative tool designed to help students with cognitive, sensory, and orthopedic impairments to develop inquiry and research skills within the context of the middle school curriculum. The project will help students pose research questions, develop a research plan, gather and analyze information, and present their knowledge to others.

Method: The existing software program, Search Organizer, will be redesigned to be more accessible and useful for students with disabilities. Various strategies will be used to develop the improved package, which will be tested in several middle-school settings where students with disabilities participate in research and project-based work.

Products: In this information age, students with disabilities need to become skilled inquirers and researchers; for those with cognitive, sensory, and orthopedic impairments, these skills are particularly difficult to develop. Re:Search will provide an elegant research tool that is intuitive, accessible, and eminently useful to middle school students with disabilities. This product will be marketed and disseminated to schools throughout the country through partnerships with various organizations.

(84.180U)
Collaborative Research on Technology, Media, and Materials for Children and Youth with Disabilities

Grant Number: **H180U950025**

Examination of the Effectiveness of a Functional Approach to the Delivery of Assistive Technology Services in Schools.

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Beginning Date: Oct 1, 1995
Ending Date: Sep 30, 1999

Purpose: To examine the impact of the use of a recently conceptualized unifying model of human function to guide the development and delivery of assistive technology services in public schools.

Method: The functional model to be used focuses on identification of demands that are placed on an individual from the environment and the functional responses that are required to respond to those demands. Functional responses are made within the context of personal perceptions, the available personal resources, and the external supports (including assistive technologies) that can be provided. Research will be conducted to identify commercially-available assistive technology assessment instruments and development of specifications for assistive technology assessment protocols. Research will also conduct an initial comparison of assistive technology information systems, and procedures will be developed for researching other identified information systems. Procedures will be developed for conducting research on interaction analyses occurring during assistive technology IEP meetings, as well as procedures for guiding the evaluation of assistive technology effectiveness. Project staff will develop instrumentation for conducting critical incident studies to determine the competencies needed by those who are involved in delivering assist technology services. Initial training materials, procedures for evaluating their effectiveness, and guidelines for providing training for those who will be implementing the policies and procedures will be developed. Baseline information about existing assistive technology policies and procedures will be collected as well. A variety of qualitative and quantitative research methodologies will be employed to answer key research questions, including survey research, case studies, single subject research, critical incident studies, interviews, direct observation, and evaluation research. Following comparison of this baseline data with research findings based on assessment of outcomes among students receiving these technology services, the final summer of the project will be devoted to analysis of project effectiveness and preparation of the final report.

Products: Project findings will be presented at state and national conferences, and an article reporting on research comparing software packages will be prepared for publication in a professional journal. A document of Guidelines for Providing Assistive Technology Services in Schools will be generated, to include a description of what was learned as a result of various project investigations. A manual will also be de-

veloped for each of the screening and assessment procedures used in the project. Screening and assessment devices will also be discussed in a series of reports for consumers.

*Grant Number:*H180U950026

Formulate and Conduct Research Around Improving Education and Technology Related Services at the Local Level

*Project Director:*Kiernan, William E.; Hart, Debra

*Beginning Date:*Oct 1, 1995
*Ending Date:*Sep 30, 1999

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*Purpose:*To examine the impact of comprehensive district-wide capacity-building initiatives on the utilization of assistive technology across learner environments.

*Method:*Technical assistance in the development of adoption of policies (including a funding plan) supporting the utilization of technology in the classroom will be provided. Training will be given to school personnel and family members relating to available assistive technology funding options. Training and technical assistance will also be provided to teachers, focusing on the utilization of instructional software in the classroom. District Assistive Technology Utilization Teams will receive assistance in heightening community awareness of the potential of assistive technology, and students and family members will receive training regarding low cost assistive technology for use in the home, workplace, and community. Project collaborators will join with three local education agencies and one regional educational collaborative to participate in the first two years of the project. In each participating LEA or REC, a series of behavioral observations of five target students will be conducted, during which time data will be collected on the students' level of active participation in integrated settings. Project activities in the third year will be primarily devoted to measuring outcomes and conducting dissemination activities.

*Products:*Progress reports will be developed and disseminated to the project PAC, the state Department of Education, and other interested parties. Data-based and descriptive articles will be written and submitted to appropriate journals, and project staff will be prepared to present results at various national, regional, and state conferences.

Grant Number: **H180U960004**

Implementing a Computer-Aided Speech-to-Print Transcription System as a Support Service for Deaf and Hard of Hearing Students

*Project Director:*Stinson, Michael

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*Beginning Date:*Dec 1, 1996
*Ending Date:*Nov 30, 1999

*Purpose:*To develop knowledge, procedures, and guidelines for effectively implementing the C-Print system as a support service for deaf and hard of hearing high school and college students.

*Method:*A real-time speech-to-print transcription system will be implemented as a support system for deaf students. This system employs a hearing transcriber and a computer program to convert speech into print as the words are being spoken. The system uses a laptop computer and word processing software with a computerized abbreviation system to reduce keystrokes, and will provide a real-time text display for students to use to understand what is being said and done in the classroom. In addition, the text file thus stored will be available for examination by students, tutors, and instructors after class. The C-Print system will be implemented in four settings where students are mainstreamed: (a) a large, centralized high school regional program; (b) a program which provides itinerant teachers and support services to deaf and hard of hearing students attending local high schools; the college program at the National Technical Institute for the Deaf which has a large number of students and extensive support services; and (d) a group of college programs with few deaf and hard of hearing students and limited support services. Staff will collect qualitative and quantitative data to specify exactly how students use this technology and the extent to which the technology is beneficial. The project will also collect objective data regarding comprehension and retention of lecture material, and the data are expected to indicate the characteristics of students and conditions under which C-Print is most beneficial. The professional development component of the project will develop effective procedures for training C-Print operators to work in a variety of settings, create clearly specified roles for them, and share this knowledge with special education and regular classroom teachers.

*Products:*Information concerning hardware and software, the abbreviation system, research and evaluation efforts, operator use in the classroom, and the utility of the system for deaf and hard of hearing students at the secondary and postsecondary levels will be disseminated via workshops, conference presentations, journals, project materials, a video documentary, and demonstrations of the system.

Grant Number: **H180U960008**

Project ASSIST: All Students in Supported Inquiry-Based Science with Technology

Project Director: Digisi, Lori

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

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Purpose: To develop, implement, evaluate, and disseminate a model that will have a national impact on the successful inclusion of students with diverse disabilities in inquiry-based science classrooms that integrate technology, media, and materials.

Method: Staff will work intensively with one demonstration site in the Cambridge, Massachusetts Public Schools. Teachers will be trained in the action research model to be used, and a feedback system will be initiated to support this model. Staff will develop embedded assessments for two Supported Inquiry Science (SIS) units for each grade level, and their reliability and validity will be tested at the demonstration school. Teachers will keep results of embedded assessments in their six focal students' science portfolios throughout the project, and the project's impact will also be assessed through interviews and surveys. Additional schools will be added in Year 2 and Year 3, following the same basic model as was used in Year One.

Products: Staff will develop and refine an ASSIST manual, featuring project guidelines, case studies, sample curriculum materials, and resources. Awareness and readiness to replicate the model will be built through four other large-scale reform projects housed at EDC. Staff will also share project descriptions and materials through the World Wide Web, journal articles, written publications, and conference presentations.

Grant Number: **H180U960012**

Project BRIDGE: Bridging the Gap Between Research and Practice

Project Director: Carnine, Doug; Grossen, Bonnie

Beginning Date: Oct 1, 1996
Ending Date: Sep 30, 1999

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Purpose: To evaluate the effects of a policy that involves close monitoring of student performance data, comparison of local results with results from comparable students in research studies, and making necessary modifications in professional development during local technology, media, and materials (TMM) implementation to reach target performance levels.

Method: During the first project phase, a prototype policy will be developed and evaluated around a group of studies validating various aspects of the BIG Accommodation TMM for middle school students with

disabilities taught in regular classrooms. The BIG Accommodation is an integrated curriculum teaching students with disabilities high-level problem-solving and reasoning strategies in science, mathematics, history, writing, and critical thinking. This approach incorporates interactive videodiscs, multimedia CD-ROM presentations, and other TMM. In the second phase, a generic BRIDGE policy will be developed and evaluated, with data from the field test used to identify where success levels of participating students with disabilities do or do not match success levels of students in previous research. Policies and/or professional development programs will be altered in response to these identified strengths and failings. Field testing will take place in urban and/or economically disadvantaged communities, and replication of the BRIDGE model will occur in large urban areas where a research and dissemination network is already active.

Products: The final product will be manuals for use in professional development to enable local school personnel to adopt and implement the BRIDGE policy. A manual will also be issued as a second volume of the Handbook for Site Councils, to be disseminated through professional development work with site councils throughout Oregon.

Grant Number: **H180U960037**

Achieving Curriculum Inclusion and Integrating Technology with Instruction Through Backward Mapping and Collaborative Action Research

Project Director: Gersten, Russell; Keating, Thomas

Beginning Date: Jan 1, 1997
Ending Date: Dec 31, 1999

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Purpose: To analyze technology use, policies, and implementation practices within three states and three local school districts.

Method: Strand One will consist of a policy analysis using focus groups, review of critical documents, key informant interviews, and direct classroom observations. Staff will examine discrepancies, misinterpretations, and unintended effects of policy at the school/classroom level in Oregon, Massachusetts, and Maryland. Analysis will provide a baseline description of SEA and LEA policies concerning access to and implementation of technology for students with learning disabilities, and how these policies actually play out at the classroom level. Strand Two will consist of two collaborative action research studies involving 20 students with learning disabilities at each of two sites in Oregon and Massachusetts. These studies will develop an instructional and professional development approach merging state-of-the-art technology with recent advances in instruction, focusing on conceptually based teaching of key concepts and issues in 20th century American civilization using a widely available software package for electronic concept mapping. Strand Three will focus on synthesis and dissemination activities, including a return to policy analysis and generation of policy recommendations using a "backward mapping" method.

Products: Staff will develop a report delineating similarities and differences across states and communities, and articulating relationships among strategies in the National Agenda for Technology, Media, and Materials for students with disabilities. A range of dissemination materials will also be developed for urban communities with culturally and linguistically diverse populations.

(84.327A)
Steppingstones of Technology Innovation for Students with Disabilities

Grant Number: H327A980007

Multiple Output Graphing Scientific Interactive Calculator

Project Director: Morford, Ronald A.

Beginning Date: Sep 1, 1998
Ending Date: Aug 30, 2000

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Purpose: The objective of the Multiple Output Graphing Scientific Interactive Calculator (MOGSIC) project is to design, develop, and test custom software in conjunction with economical hardware to enable visually impaired students to independently analyze graphs and perform scientific calculations.

Method: The MOGSIC project provides a set of tools that enable visually impaired students to perform functions similar to those done with commercial graphing scientific calculators. Specifically, they can perform scientific calculations, enter and edit math equations, and perform interactive graph analysis.

Products: MOGSIC will enable visually impaired students to equally compete with their sighted peers in math and science courses. This new technology will enable visually impaired students to succeed in math and science courses in high school and college, and will open the door for them to pursue and succeed in math and science careers.

Grant Number: H327A980011

A Software Tutorial for Learning the Nemeth Code of Braille Mathematics Notation for Use by Students Who Read Braille

Project Director: Kapperman, Gaylen

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

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Purpose: The Software Tutorial for Learning the Nemeth Code of Braille Mathematics Notation for Use by Persons Who Are Blind is a tool by which severely visually disabled students can learn to read and write the braille symbols which comprise the braille mathematics code on an independent basis. Research indicates that blind students, in general, experience great difficulty reaching levels of achievement com-

mensurate with their abilities. It is suggested that one of the major reasons for this lack of achievement is their inability to read and write braille mathematics. Their teachers, generally, have little to no training in the Nemeth Code. As a consequence, teachers are not capable of providing high quality instruction in braille mathematics. The staff of the Research and Development Institute will develop the software tutorial, in collaboration with Blazie Engineering, to be used by blind junior high and high school students to learn how to read and write braille mathematics notation.

Method: The tutorial will be developed to operate on the Braille Lite, a small portable computer which combines both synthetic speech and an electronic, refreshable braille display. Lessons will be presented to the learner both in speech and braille. The software will be designed in such a fashion that when mathematical expressions are displayed, the speech synthesizer will speak them, using technically accurate vocabulary. In that way, the learner will be able to hear the mathematical expressions spoken and to read their braille equivalents.

Products: This project will develop a tool to enable blind students to improve their mathematics achievement, in order to enable them to study technical fields.

Grant Number: **H327A980020**

The Visual Mathematics Project

Project Director: Jenkins, Kathleen

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

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Purpose: The Visualizing Mathematics Project (VMP) will address both the lack of sophisticated tools and the need for a conceptual focus for students with learning disabilities, by developing a series of computer-based, instructional modules for teaching common mathematical operations and topics. The overall framework of this project is to create an innovative and emerging technology within the parameters of the software development lifecycle that is suitable for field-based evaluation.

Method: Students and teachers will be able to access and play brief, computer graphic animations of basic computational operations (i.e., addition, subtraction, multiplication, division) and key math topics such as fractions, decimals, and geometry. The operations and topics covered will be drawn from the current literature on elementary and middle school mathematics and cross-referenced with the instructional intervention literature in special education. Each module will be designed to play for approximately two to three minutes, and will be accompanied by voice narration. Some modules will involve the use of pictorial demonstations of operations and concepts. The pictorial demonstations will include tiles or blocks, which are a consistent feature in the current mathematics literature. The VMP modules and problem sets will be usable in a variety of instructional environments. Students can play the modules on individual computers and special education teachers can use VMP modules in class for demonstrations. The project will also produce guides for teachers on how to use the modules with a variety of commercial mathematics curricula. This will enable teachers to use the modules in conjunction with specific lessons in their print curricula. Current Internet "browser" software (e.g. Netscape Navigator, Microsoft Explorer) will be the platform for playing these modules. Once they are downloaded from the Internet or loaded from diskettes, they can be played within a browser without any connection to the Internet.

Products: The project will produce a series of independent instructional modules for teaching mathematical operations and topics, visually and conceptually. The VMP modules are designed to address the contemporary mathematics research issue that procedural practice (i.e., hand practice on computational problems) should be conceptually guided. At any time users can download and print a small practice set of problems directly related to the operation or topic being demonstrated. The project staff will develop a user's guide for the VMP modules with detailed examples of how teachers can incorporate VMP modules into daily instruction and with cross-references from the VMP modules to appropriate lessons in a wide range of commercially available mathematics curricula. The project staff will disseminate the modules nationally through linkages to software and curriculum companies such as Microsoft Corporation and the Everyday Learning Corporation. Both corporations have World Wide Web sites from which the modules will be disseminated free of charge.

Grant Number: **H327A980023**

The Cornerstones Project

Project Director: Goldberg, Larry

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Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

Purpose: The Cornerstones Project is a balanced technology-based approach to literacy development for children who are deaf and hard-of-hearing. The project's primary objective is to obtain evidence that the Cornerstones approach is feasible for improving literacy through building background knowledge, increasing word knowledge, and improving word recognition skills. The impact of Cornerstones in educating deaf and hard-of-hearing children is far-reaching, since the project intends to provide teachers nationwide with convenient and appropriate materials and lesson guides for improving literacy.

Method: The Cornerstones Project recognizes that children who are deaf and hard-of-hearing encounter tremendous difficulty using higher-order processing skills during reading and writing partly because they bring inadequate background knowledge to these tasks, which also affects their ability to learn meanings of words. They also have problems developing lower-order processing skills, partly because they have not learned adequate strategies for identifying new words. To be effective, literacy instruction must address all these skills through the use of appropriate and engaging materials. The project will take advantage of the WGBH Educational Foundation's educational materials produced for children, as well as WGBH's expertise in captioning. Several groups of experts will help refine the approach: content experts—three academics in the field of deafness and literacy, and three exemplary teachers of deaf and hard-of-hearing students; WGBH New Media Team—three members of WGBH's Interactive Projects division; Digital Delivery Experts— three staff members from technology divisions within WGBH; advisors—two additional academics in the field of deafness and literacy; and teacher focus groups. The technology that supports the Cornerstones approach is a multimedia library of motivating materials, centered on a collection of video stories, as well as lesson guides for teachers that focus on both higher-order and lower-order literacy processes.

Products: The library will be delivered to classroom computers (or computer/television hybrids) via the World Wide Web, digital television, or CD-ROM. A user-friendly interface will help teachers navigate and retrieve materials easily and effectively.

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*Grant Number:*H327A980024

The Strategic Reader: Textbooks Today, Web Tomorrow

*Project Director:*Pisha, Bart

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*Beginning Date:*Sep 1, 1998
*Ending Date:*Aug 31, 2000

*Purpose:*Current textbook materials and teaching practices typically fail to effectively provide individualizable support (or scaffolds) for students who need help in the areas of: pattern recognition that leads to content understanding, strategic approaches to learning, and engagement with materials. This project will rectify this deficiency by further developing and refining an existing software tool, the Ultimate Reader, so that it provides support not only for decoding and entry-level reading skills, but for higher-level comprehension and study skills within specific content domains. CAST will focus on secondary-level history as an example, with an enhanced digital version of a standard commercial textbook as the content. The goal of this project is to develop a software tool and instructional approach that will: 1) improve cognitive access for special needs students to mainstream high school content-area materials, and 2) support their learning and use of reading skills and study strategies.

*Method:*CAST intends to: 1) refine a technology-based tool that will scaffold students as they learn specific content area knowledge and skills from textbooks and the World Wide Web; 2) create features for that tool that will support students as they learn to identify patterns in the text, develop effective strategies, and learn to sustain motivation and effort; 3) develop modifications for digital textbooks and other material that support such learning; 4) develop supports for teachers in the use of the technology and associated instructional approach which tie instruction to local and national standards; and 5) establish guidelines for publishers for the preparation of textbooks. CAST will build on the commercially available software, ULTimate Reader for Windows, a text-to-speech tool that provides access to information for individuals who cannot read adequately by converting electronic text into audible words. The project will extend the Reader into the domain of reading strategies and study skills by developing new features and supports for learning, enhanced content area materials, and cutting edge instructional methods. The tool can be applied successfully to both digitized text content and Web-based information.

*Products:*This work is ultimately intended to increase the number of learners succeeding in content areas like history, the number of teachers providing effective technology-based instruction to diverse learners, and the number of publishers providing supportive, accessible content. In collaboration with a major educational publisher, the project staff will prepare enhanced electronic social studies textbook chapters. The enhanced content will help students recognize important patterns while learning social studies content, as well as reading and study skills. Project staff will develop instructional methods that teachers can use to make the most of the new capacities in this software. Finally, there will be a set of scaffolds and resources for publishers, software developers, and Web designers that will enable them to replicate easily the electronic "marking" and tool features to use in making cognitively accessible educational experiences.

Grant Number: **H327A980025**

Project STATUS (Student Technology Assessment through Unique Strategies)

Project Director: Lewis, Preston

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Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

Purpose: The objectives for Project STATUS are: 1) to create a rural access system of multidisciplinary assistive technology (AT) evaluations and technical assistance through the use of distance-based interactive video technologies; 2) to adapt distance-based interactive video technologies to perform AT assessments and provide technical assistance for educational purposes; 3) to develop instructional methods for teaching local school personnel how to facilitate implementation of the AT recommended through the distance-based assessment; 4) to demonstrate how interactive distance-based AT evaluation and technical assistance ultimately impact student participation in statewide assessment and accountability and improvement in overall educational performance.

Method: The strategy to be employed by Project STATUS to address rural access to multidisciplinary assistive technology evaluation and technical assistance from trained professionals is to use distance-based interactive technologies to conduct AT assessments and technical assistance. This effort will be achieved through: 1) using new state-of-the-art (mini-cam, video-conferencing) and Internet technologies to provide functional assistive technology assessments; 2) assisting school personnel in determining and implementing assistive technology devices and services; and 3) conducting professional development for school personnel. The project will capitalize on the technology system developed in conjunction with the Kentucky Education Reform Act to reach students across the Commonwealth.

Products: Project STATUS will provide children with disabilities better means of accessing technologies that will enable them to achieve outcomes expected of all students, such as greater independence and productivity. Professional development will be conducted through the Kentucky statewide telecommunications network (a compressed video-site based system) and a World Wide Web site.

Grant Number: **H327A980030**

Teaching Scientific Inquiry Skills to Orthopedically Impaired Students in Virtual Reality

Project Director: Inman, Dean

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Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

Purpose: The primary goals of this project are: 1) to investigate the efficacy of virtual reality learning environments as a tool for enabling secondary students with severe orthopedic impairments to be educated in regular science education classes along with their nondisabled peers; 2) to identify the conditions and supports that must be present to implement virtual reality learning environments in regular science classes; 3)

to identify principles for effective virtual reality learning environments that ensure meaningful student participation and meet multiple instructional needs; 4) to validate that virtual reality learning environments ensure adequate student progress in regular classroom settings, and 5) to disseminate results of this research on the use of virtual reality learning environments in ways that maximize the impact of this innovative strategy on the education of students with severe orthopedic impairments. The vision of this project is that access to specialized computer-based materials such as virtual reality learning environments will help to minimize the negative effects of students' physical limitations and thereby foster greater participation in regular science class instruction.

Method: Virtual Reality (VR) is a newly emerging technology that can permit students with severe physical limitations to participate fully in science experiments and activities, thereby maximizing their potential to complete important scientific experiments and activities and maximizing their potential to learn important scientific concepts. This is accomplished by providing students with extremely realistic, three-dimensional computer-generated representations of real-world settings. In these settings the students can make observations and perform experiments using a standard joystick assembly. Moreover, all their tools, supplies, and devices are completely interactive, thereby minimizing the limitations normally imposed by the students' physical disabilities. In short, the virtual reality experiences will permit the "doing' which is so important in the acquisition of scientific knowledge. The Oregon Research Institute (ORI) Virtual Reality Lab is a fully equipped development facility that will work closely with science teachers at selected secondary schools to identify specific units within the existing curriculum from which students with severe orthopedic impairments are excluded due to their physical limitations. The technical staff at the ORI Virtual Reality Lab will then create three-dimensional scenarios to be implemented in science classrooms containing one or more students with severe orthopedic impairments.

Products: A technical report will be written at the end of the each year describing the project and summarizing the results of evaluation efforts up to that point. In addition, a manual for implementing the strategies found to be effective will be written, with special emphasis on guidelines for implementing the program in public schools.

Grant Number: **H327A980035**

Literacy Access Online

Project Director: Behrmann, Michael

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

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Purpose: The purpose of this project is to develop a universally accessible, Web-based literacy learning tool for students with disabilities, ages nine thru 14. Literacy Access Online will utilize best practices in basic literacy acquisition; incorporate existing and emerging assistive, Web-based, and instructional technologies; include direct instruction to enhance learner/teacher or learner/parent relationship-based interactions; integrate current, age appropriate, real life literacy experiences into student-centered learning activities; and apply the principles of universal design to provide access to all students with disabilities.

Method: Literacy Access Online will synthesize and organize the best in literacy instruction for all students, providing access for those with disabilities ranging from mild to severe. Researchers and experts in the field will provide oversight and direction to this effort. Accommodations and approaches will be offered that embrace individualization based upon the unique needs of the student. While primarily technol-

ogy-driven, instructional techniques will incorporate and support volunteer and/or paid "literacy facilitators." This project has potential for local, state, national, and international impact. Since the project is World Wide Web-based, any student or literacy facilitator with access to the World Wide Web has the potential to benefit from the use of the Literacy Access Online tool. The tool can be used at home for independent use, in the classroom for individual or group instruction, at a university for graduate literacy training as well as continued research and development, and as an individual tool for individuals with and without disabilities at many different reading and writing levels. Literacy Access Online will supplement existing reading programs and general education curriculum materials. The product has potential to be a powerful tool to adapt general education curriculum for individual student level and need.

Products: The project will result in a Web-based literacy learning tool that synthesizes and organizes the best in literacy instruction for all students and will be developed with input from parents, educators, students, and technology experts.

Grant Number: **H327A980036**

Project CONNECT: Cyberschool to Organize Knowledge through Networks to Enhance Content Teaching

Project Director: Stults, Cynthia

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Beginning Date: Sep 1, 1998
Ending Date: Aug 31, 2000

Purpose: Project CONNECT (Cyberschool to Organize Knowledge via Networks to Enhance Content Teaching) is a collaborative research project with Eugene School District 4J and the University of Oregon. The project will design, implement, and field-test curriculum adaptations used within Cyberschool, an electronic network-based school that has been developed by the school district, and make them available for students with disabilities. A number of courses are offered in Cyberschool, all of them credit-bearing for use in graduating from high school with a diploma. The goal of this project is to understand if this technology is effective in working with students with disabilities and if so, what critical dimensions make it effective and feasible.

Method: The project activities will be centered around both a curriculum design perspective and an electronic platform, taking advantage of a well-developed Cyberschool infrastructure already in place in the district. The curriculum design component focuses on content teachers identifying and highlighting specific knowledge forms (concepts and principles) that will be adapted to model and guide students in their learning by using a variety of intellectual operations and critical thinking skills. All curriculum-instruction modifications are oriented toward problem solving outcomes that are aligned with the state-mandated Certificates of Initial and Advanced Mastery. This project's research is based on ensuring that students with disabilities are included in all of the educational reforms designed around these certificates, using electronic media to help deliver teachers' programs and enhance students' access. The project research is conducted using the Cyberschool to both deliver the redesigned curriculum and instruction and to embed assessment formats and outcomes so that teachers participating in the study can include students with learning disabilities. The project staff will compare the performance of students in this experimental treatment with their performance in units lacking the adaptations, using repeated measures in all studies. In the process of redesigning how instruction is planned and delivered for students with disabilities, teachers

who already have courses developed for the World Wide Web will be recruited. Volunteers will be asked to help structure adaptations so students with disabilities can participate.

Products: The curriculum adaptations to be developed should have great implications for changing the way teachers establish and implement network courses, develop Individualized Educational Plans, grade students, schedule classes and matriculate students. The curriculum adaptations will be World Wide Web-based, therefore the opportunity is available for immediate dissemination and widespread impact in all high schools in the nation. In addition to the project information available from the RCTP World Wide Web site, more detailed information concerning course offerings, descriptions, prerequisites, and registration is available directly from the CyberSchool website. This site is not static, but offers an interactive environment where students, teachers, councilors, and others can dialog about course content, instructional and assessment methods, modifications, and accommodation available to students with special needs, or other relevant subjects. Training modules will also be prepared as a vehicle for dispersing the project's information. The University of Oregon's Research, Consultation, and Teaching Program (RCTP) provides the opportunity for the project to publish its findings in a Research Report series.

Grant Number: **H327A980040**

Improving Access to the General Curriculum and Improved Literacy through Assistive Technology for Students with Expressive Communication Impairments

Project Director: Cirlot-New, Janie; Coffey, Kent

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

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Purpose: The T.K. Martin Center for Technology and Disability and the Department of Education at Mississippi State University, in collaboration with the Mississippi Department of Education, will develop and validate an approach to the use of assistive technology to improve access to and participation in the general curriculum for students with disabilities. This model will provide a process for utilizing appropriate augmentative and alternative communication technologies, strategies, and techniques to enhance educational outcomes of students with disabilities in rural school environments that have little knowledge of or utilization of assistive technology for expressive communication.

Method: The project will develop a replicable district and individual school-level process for identifying appropriate expressive communication goals, selecting appropriate technology, and utilizing appropriate strategies and techniques for teaching expressive communication to individual students with utilization of assistive technology. Project objectives and activities will be directed at two major goals. The first goal is to validate the components that are specific to the development and implementation of a district and school-level assistive technology comprehensive plan for students with expressive communication impairments. The plan will use local "expert assistive technology intervention teams" to systematically train Local Education Agency (LEA) personnel to select appropriate goals and objectives for expressive communication, suitable assistive technology from a pre-established set of resources, and intervention strategies and techniques; provide ongoing technical assistance and resources to LEAs; and ensure that expert teams have adequate structures and resources to operate beyond the period of this project. The second goal is to validate strategies to facilitate the acquisition and generalization of a set of competencies to be demonstrated by teachers and service providers in order to improve literacy skills and increase access to the general curriculum for students with disabilities. The project will collaborate with the LEAs in the

Starkville Municipal Separate School District, Tupelo Municipal Separate School District, Webster County School District, and West Point Municipal Separate School District in Mississippi. These districts represent both urban and rural districts within a predominantly rural state.

Products: The project will provide assistive technology to approximately 550 individuals with expressive communication impairments, and will intensively train 38 to 59 LEA personnel to effectively provide technology-based intervention to students within the general curriculum.

Grant Number: **H327A980044**

Project INTERSECT: Internet Texts with Resources, Supportive Enhancements, and Comprehension Tools

Project Director: Anderson-Inman, Lynne

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Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2000

Purpose: The inability of many students with disabilities to comprehend the text materials assigned by general education teachers has a negative impact on their literacy skills, their abilities to succeed in general education courses, and their abilities to perform successfully on tests reflecting local, state, or national curriculum standards. The goals of Project INTERSECT are to improve the literacy of secondary students with reading and/or learning disabilities, increase their success in the general education curriculum, and enhance their participation in educational reform through the creation and distribution of World Wide Web-based texts and textbooks specifically designed to meet their comprehension and information acquisition needs.

Method: To accomplish the goals of the project, Project INTERSECT has adopted the following four objectives: 1) to increase the effectiveness of on-line texts and textbooks for students with reading/learning disabilities; 2) to improve the efficiency by which on-line texts and textbooks are created, modified, and extended; 3) to improve the utility of on-line texts and textbooks by increasing the ability of teachers and students to integrate them into the curriculum and adopt them to meet specific circumstances and individual needs; and 4) to increase the availability of on-line texts and textbooks designed to support the comprehension and learning needs of secondary students with reading/learning disabilities.

Products: The major product resulting from Project INTERSECT will be a site on the World Wide Web that has three major components: 1) a "Digital Library" with 15-20 prototype texts and textbooks, designed specifically to provide secondary students with disabilities the supportive resources, text enhancements, and study tools they need for successful comprehension and learning; 2) an interactive "Instructional Center" with modules and materials designed specifically to assist students and teachers in using texts from the Digital Library; and 3) a "Development Center" that provides teachers and other curriculum developers with the tools and templates they need to modify and/or create additional Web-based texts compatible with the specifications of materials already in the "Digital Library."

(84.327B)
Readline

Grant Number: **H327B980001**

The Reading Project

Project Director: Gunther, Noel

Beginning Date: Jan 1, 1999
Ending Date: Dec 31, 2001

WETA, Inc.
2775 S. Quincy Street
Arlington, VA 22206
Voice: (703)998-2744

Purpose: WETA, the public broadcasting station in Washington, D.C., will develop "The Reading Project," which will disseminate research-based information on early diagnosis and effective strategies for teaching reading to children with disabilites who demonstrate difficulties learning to read. This project's hope is to reach parents, teachers, school administrators, tutors, day care providers, and the general public—anyone with an interest in helping children learn how to read.

Method: "The Reading Project" will launch an ambitious, media-based campaign to disseminate research-based findings to the widest possible audience. This project will be advised by nationally known experts in the field, such as Dr. Carol Sue Englert, Dr. Lynne Fuchs, Dr. Joseph Jenkins, Dr. Ed Kame'enui, Dr. Margo Mastropieri, Dr. Louisa C. Moats, Dr. Rollanda O'Connor, Dr. Anne Marie Palincsar, Dr. Louise Spear-Swerling, and Dr. Lee Swanson. The project has developed a comprehensive dissemination plan, working with partners such as the American Federation of Teachers, the American Association of School Administrators, the American Library Association, the Council for Exceptional Children, the International Reading Association, the National Association of Elementary School Principals, the National Association of State Directors of Special Education, the Urban Special Education Collaborative, and Zero to Three, among many others.

Products: The project's services will include: 1) a public television documentary offering information on early identification of children with language or reading problems and effective strategies for addressing those problems; 2) two videotapes explaining and demonstrating effective, research-based techniques for helping children learn to read; 3) a print guide designed for teachers and parents, which will include research-based strategies, exercises, and resources; 4) three teleconferences featuring top experts from around the country; and 5) an ambitious World Wide Web site, with in-depth information, research articles, bulletin board discussions, and "Ask the Expert," giving parents and teachers around the country the chance to speak with top researchers and master teachers. This Web site will build on WETA's successful experience operating LD OnLine (www.ldonline.org), an award-winning Web site on learning disabilities.

(84.327E)
Captioning Children's Educational Materials

*Grant Number:*H327E980001

Closed Captioning of the Series: The History Channel Classroom

*Project Director:*Duckler, Max

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

CaptionMax, Inc.
708 N. First Street #238
Minneapolis, MN 55401
Voice:(612)341-3566

*Purpose:*Under this project, CaptionMax, Inc., will provide quality off-line "pop-on" style captioning for "The History Channel Classroom," a popular non-commercial, educational program that airs nationally on the History Channel and is broadcast in classrooms across the country.

*Method:*CaptionMax will caption approximately 130 hours of educational programming per year for the History Channel series. This programming will enable all programs of "The History Channel Classroom" to be accessible to deaf and hard of hearing students and teachers.

*Products:*By providing captioning for the 130 hours of programming, this project will make educational programs that have never before been captioned accessible to deaf and hard of hearing students and teachers, a population of about five million individuals, and also to about six million viewers who use English as a second language.

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*Grant Number:*H327E980002

Closed Captioning of the Series: "A&E in the Classroom"

*Project Director:*Duckler, Max

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

CaptionMax, Inc.
708 N. 1st Street
Minneapolis, MN 55401
Voice:(612)341-3566

*Purpose:*This project of CaptionMax Inc. will provide quality off-line "pop-on" style captioning for the non-commercial educational program on the Arts and Entertainment (A&E) Network known as "A&E Classroom."

*Method:*Employing ten captioners and six stations as part of the CaptionMax team, the project will provide closed captioning (via the use of off-line "pop-on" style captioning) to over 130 commercial-free, hour-long programs per year of the grant. All captioning is done within guidelines incorporating recom-

mendations from the National Association of the Deaf's Captioned Films/Videos Program and from mini-studies done with a deaf consumer advisory board.

Products: This project will enable all programs in the "A&E Classroom" series to become accessible to deaf and hard-of-hearing students and teachers.

Grant Number: **H327E980007**

Closed Captioned Educational Programming

Project Director: Karlovits, Joseph R.

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

VITAC Corp.
101 Hillpointe Drive
Canonsburg, PA 15317
Voice: (724)514-4040

Purpose: Through this project, VITAC will caption a variety of educational programming available to national TV audiences and to schools to make it accessible to students who are deaf or hard of hearing.

Method: With a 12-year track record of captioning for live and prerecorded programs, VITAC will provide captioning to approximately 266 hours of televised educational programming over the three-year grant period, including nationally televised programs that are viewed by children in an educational setting. The project will work to expand private-sector support for captioned programming by using federal funds as an inducement to increase funding support from program producers, and it will continue to get input and guidance from the deaf community through its Viewer Advisory Panel.

Products: As a result of this project, over 152 half-hour programs and 51 quarter-hour programs of a comprehensive mix of nationally cablecast commercial-free educational television programming, will be captioned. All programming is approved and distributed by the Cable in the Classroom service that promotes in-school usage of TV programs.

Grant Number: **H327E980008**

Closed Captioned Educational Programming: The Noggin Channel

Project Director: Orphan, David

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

National Captioning Institute, Inc.
1900 Gallows Rd. Suite 3000
Vienna, VA 22182
Voice: (703)917-7600

Purpose: The primary goals of this project are to increase the availability of closed-captioned, noncommercial educational programming for children who are deaf or hard of hearing and to expand the variety of accessible educational programming available for use in the classroom. The National Captioning Institute (NCI), in cooperation with the Children's Television Workshop (CTW) and Nickelodeon, will complete closed captioning of 600 hours of educational programming for airing on "NOGGIN," CTW and Nickelo-

deon's newly formed 24-hour noncommercial educational cable television channel. "NOGGIN" combines CTW favorites such as "Sesame Street," "Electric Company," and "3-2-1 Contact" with Nickelodeon shows like "Blue's Clues" and "Nick News" to build a foundation of educational programming and to encourage kids and families to use their "noggin." The goal of "NOGGIN" is to "plug into children's natural curiosity, enthusiasm, and desire to learn."

Method: The project will work directly with CTW and Nickelodeon to caption programs that are slated to be aired on the new noncommercial "NOGGIN" channel. For each year of the three-year project, approximately 200 hours of programming will be captioned. In the first year, captioning resources will be divided among three CTW programs ("3-2-1 Contact," "Electric Company," and "Square One TV) and three Nickelodeon programs ("Gullah Gullah Island," "Wild Side," and "Make the Grade"). In years two and three, additional programs will be added to the program mix, including new original programs that CTW and Nickelodeon plan to produce for "NOGGIN" after its first year of operation.

Products: The project's primary product will be its 600 hours of closed-captioned educational programming for children.

Grant Number: **H327E980009**

Closed Captioned Educational Programming

Project Director: Becker, Sue; Apone, Tom

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

WGBH Educational Foundation
125 Western Avenue
Boston, MA 02134
Voice: (617)492-9225

Purpose: This project of the WGBH Educational Foundation will closed caption a variety of nationally distributed instructional television programs delivered through the National Educational Telecommunications Association (NETA) Educational Resources program. It will reflect program choices of educators, parents, and students and use the highest quality captioning standards and professional experience.

Method: The project will provide captioning of approximately 126 hours of educational programs each year of the grant. It will ensure a wide selection of programming available to over 26,000,000 students through NETA's Educational Resources affiliates at public television stations and through direct provision to participating school districts.

Products: In keeping with its mandate to serve all deaf and hard-of-hearing students, the project addresses a wide variety of educational programming, including math, science, English, health, social studies, history, fine arts, geography, vocational education, and other programming as appropriate.

Grant Number: **H327E980010**

Closed Captioned Educational Programming

Project Director: Kay, Lori

WGBH Educational Foundation
The Caption Center
125 Western Ave.
Boston, MA 02134
Voice: (617)492-9225

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Purpose: This project of the WGBH Educational Foundation will add closed captioning to a variety of nationally distributed instructional television programs delivered through the Cable in the Classroom program. It will reflect program choices of educators, parents, and students and use the highest quality captioning standards and professional experience.

Method: The project will provide captioning of approximately 113 hours of educational programs each year of the grant. It will ensure a wide selection of programming available to over 42,000,000 students through the Cable in the Classroom program, which has over 8,000 cable operators.

Products: In keeping with its mandate to serve all deaf and hard-of-hearing students, the project addresses a wide variety of educational programming, including math, science, English, health, social studies, history, fine arts, preschool skills, and other programming as appropriate.

(84.327K)
Recorded Audio Cassettes for Visually and Print Disabled Students

*Grant Number:*H327K980002

Recorded Audio Cassettes for Visually and Print Disabled Students

*Project Director:*Geisel, Ritchie L.

*Beginning Date:*Oct 1, 1997
*Ending Date:*Sep 30, 2000

Recording for the Blind and Dyslexic, Inc.
20 Roszel Road
Princeton, NJ 08540
Voice:(609)520-8014

*Purpose:*This project seeks to provide recorded audio cassettes for print disabled students at all educational levels by recording, producing, duplicating, and distributing four-track cassette versions of textbooks and other educational reading materials.

*Method:*Recording for the Blind and Dyslexic (RFB&D) will handle all requests for materials, arrange for copyrights from publishers of supplied textbooks, record or duplicate the books on one-hour cassettes, mail the cassettes on a free-loan, postage-paid basis, and handle all returned tapes and associated administrative and circulation functions.

*Products:*These cassette tapes will help provide equal educational opportunities to target students with visual and reading impairments and lessen some of the barriers they face in classrooms. By delivering the printed page to people who are blind, visually impaired, have a learning disability such as dyslexia, or who are unable to turn the pages of a standard textbook, RFB&D represents the critical difference between isolation and integration and between separation from and success in the classroom and the workplace.

(84.327N)
Captioned Films and Video Distribution Systems

Grant Number: **H327N980001**

Captioned Films and Videos Distribution

Project Director: Stark, Bill

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910-4500
Voice: (301)587-1788

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 2001

Purpose: The goal of the Captioned Films/Videos (CFV) Distribution System and the CFV Educational Video Selection and Captioning activity, as mandated by PL 85-905 in 1958, is to provide "enriched educational and cultural experiences through which deaf persons can be brought into better touch with realities of their environment." To meet this critical goal, the National Association of the Deaf will: 1) develop a set of values, a vision, and an operational philosophy that provides guidance, effective communication, and clear direction to depository managers; 2) make management decisions and operational changes based on facts and valid data; 3) provide users with superior products and services that meet and exceed demands; 4) reach out to all eligible users of CFV and create greater satisfaction; and 5) make consumers an integral part of the improvement process. The underlying intent, within the constraints of available resources, is: 1) to provide equal access to cultural and educational opportunities that otherwise would be inaccessible to deaf and hard of hearing individuals and 2) to promote these opportunities through a cost-effective materials loan system.

Method: The project will maintain booking and circulation through a centralized computer booking system; institute "user registration and feedback" procedures to ensure that consumers are able to register as new users with ease and with quick confirmation response; maintain media repair and replacement; provide catalogs and lesson guides in three formats or versions: printed, CD-ROM, and Internet; conduct annual meetings to develop a vision that leads to a condition in captioning that is better than what now exists; and conduct "outreach" which is the marketing process of planning and executing the promotion of CFV products, goods, and services that satisfy consumer needs and CFV program objectives and to extend CFV services to a wider segment of the population including a focus on deaf and hard of hearing members of underserved and minority populations which include the U.S. Hispanic community, Asian Americans, African Americans, Americans over the age of 65, Native Americans, and Asian Pacific Americans. The project will increase services to public schools by identifying schools with deaf and hard of hearing students and providing program information; educating public school personnel about the special needs of their students who have a hearing loss; and educating school personnel about the benefits of using captioned materials. The project will also provide quarterly progress reports.

Products: The NAD will make the following products and information available to consumers. Open-captioned media collections of over 4,000 video titles will be circulated to registered clients through a distribution network, and multimedia offerings will begin. A CFV catalog will be developed annually, printed, and distributed to all clients. "Lesson Guides" will be printed and distributed for each new educational video. A CD-ROM version of the CFV catalog and lesson guides will be distributed. The CFV World Wide Web site will provide an electronic version of the CFV catalog, lesson guides for CFV educational

videos, captioning informational and advocacy materials, online user registration capability, and electronic ordering of materials. The Captioning Database service on the CFV Web site will provide information to local school systems and others regarding the availability of open- and closed-captioned media from sources other than CFV.

(84.327R)
Recordings for the Blind

*Grant Number:*H327R980001

Accessible Formats for Educational Materials

*Project Director:*Kelly, John

*Beginning Date:*Oct 1, 1998
*Ending Date:*Sep 30, 2001

Recording for the Blind & Dyslexic, Inc.
20 Roszel Road
P rinceton, NJ 08540
Voice:(609)520-8014

*Purpose:*This project of Recording for the Blind and Dyslexic (RFB&D) will provide accessible formats of textbooks and other educational materials to print-disabled students (elementary, secondary, postsecondary, and graduate) by recording, producing, duplicating, and distributing accessible versions (analog and digital audio and digital text) of printed textbooks.

*Method:*RFB&D will handle requests for educational materials from students who are visually or print-disabled at all educational levels. It will coordinate and collaborate with publishers, software developers, other manufacturers of accessible materials for individuals who are visually impaired or otherwise print disabled, disability and educational organizations, and government agencies to ensure effective coordination and nonduplication of its efforts in the production of these materials. The project will use new technology, such as electronic text or digital audio synchronization, to produce and distribute the materials in accessible formats.

*Products:*RFB&D will record a minimum of 3,000 additional texts for use by print-disabled individuals and for inclusion in its 77,000 master tape library. It will also explore CD-ROM and network distribution of its materials. These tapes will be supplied on an on-loan basis to qualified individuals. It will disseminate its materials via catalogues and other publications, and at conferences and meetings. The materials are intended to help provide equal educational opportunities to print-disabled students and lessen some of the barriers they face in classrooms.

Grant Number: H327R980003

Accessible Formats for Educational Materials

Project Director: Konczal, Dee

Ventura College
333 Skyway
Camarillo, CA 93010
Voice: (305)648-8927

Beginning Date: Jan 1, 1999
Ending Date: Dec 31, 2001

Purpose: Recent advances in computers have made it easier for visually impaired and print disabled students to attend mainstream educational institutions, creating a huge and largely unmet need to translate materials into braille and to develop print alternatives in a nationally coordinated manner using the latest technologies. Braille and print alternative materials are often developed by hand and are not coordinated among institutions, resulting in duplication, a waste of scarce resources, and a delay in getting the materials to the students who require them to keep up with their peers. The primary objective of this project is to expand the existing Ventura College Educational Technology Center into a centralized national facility that utilizes high speed industrial technology and Internet connectivity to inexpensively serve the braille and print alternative needs of the nations' students through accuracy, quick access, and ease of use.

Method: Activities include transcription of text and educational materials into braille and print alternative products, using high speed scanners, transcription software, and a high speed industrial interpoint embosser. The transcriptions will be proofread by blind braille users to ensure accuracy; subject area consultants will review Math and Science transcriptions for content consistency; and the resulting materials will be transmitted to the client users by electronic means or by mail. Previously prepared materials will be catalogued and available for Internet download.

Products: Transcription services will be available to all U.S. students who are visually or print disabled, including infants, preschool children, and K-12 and post-secondary students. A priority system will be employed to decide which materials to produce first during peak periods. Expected outcomes are substantial cost savings, reduction of duplication, better and faster service to clients, reduced litigation, increased enrollment in post-secondary programs, and improved student performance.

Contract Number: **ED98CO0032**

Screen Reader Architecture Math System (SRAMS) Phase II

Project Director: Morford, Ronald

Beginning Date: Sep 1, 1998
Ending Date: Aug 31, 2000

Automated Functions, Inc.
7700 Leesburg Pike, Suite 420
Falls Church, VA 22043
Voice: (703)883-9797

Purpose: The major goal of the Screen Reader Architecture Math System (SRAMS) is to design, develop, and test a computer based system which uses the successful screen reading architecture to enable visually impaired students to independently manipulate math expressions and solve math problems.

Method: The rules of mathematics will be analyzed and combined with screen reading navigational logic to create a specialized system to assist the visually impaired student in interacting with math expressions and problems. Automated Functions, Inc.(AFI) started the Phase II SRAMS project by reviewing the work performed during Phase I. The Phase I work focused solely on Algebra I. The Phase II project will increase the scope to include Algebra II, Trigonometry, and Calculus. Using screen-reading theory applied to mathematics instead of prose, SRAMS will provide tools which will make it easier for the visually impaired student to succeed in higher math.

Products: A computer-based tool enables more visually impaired people to succeed in mathematics can open educational and business opportunities. The SRAMS system can provide the means for thousands of visually impaired people to succeed in higher math and therefore be qualified to fill the ever-increasing technical job and educational positions. AFI believes this system has a high probability of success and that it will positively impact thousands of visually impaired people.

Contract Number: **ED98C00041**

Conversion of Score Files to Music Braille

Project Director: Milani, Albert

Beginning Date: Oct 1, 1998
Ending Date: Sep 30, 1999

Dancing Dots Braille Music Technology
130 Hampden Road, Third Floor
Upper Darby, PA 19082-3110
Voice: (610)352-7607

Purpose: Dancing Dots Braille Music Technology will develop a new module for GOODFEEL which will be capable of interpreting files in Score format. This module will extract all musical data relevant to producing an equivalent braille score and pass them on to GOODFEEL's existing formatting functions.

Method: Commercial publishers, who have made Score the industry standard for engraving new works, have growing archives of Score files used to produce print editions. There is no automated way to interpret these Score files to produce equivalent braille editions, as GOODFEEL cannot read the Score format.

Products: This project will create the potential for publishing braille editions directly from the very same Score files used to prepare the print versions. The project will also offer blind composers an unprecedented level of control and independence in preparing a braille score.

Contract Number: **ED98PO3520**

Personal Tactile Graphics Embosser with Network Printing Capabilities

Project Director: Langner, Peter S.

Beginning Date: Sep 1, 1998
Ending Date: Mar 1, 1999

ViewPlus Technologies, Inc.
3223 NW McKinley Drive
Corvallis, OR 97330

Purpose: This project will establish the technical feasibility of a personal tactile graphics embosser and associated software drivers that could provide straightforward access by blind people to most computerized graphic information.

Method: The embossing method will reproduce the tactile equivalent of black and white drawings and block graphics and arbitrarily-positioned Braille text. This embosser will be the first Braille printer with a native Windows 95 driver to allow printing from any application running in a Windows environment. The Windows driver will provide network printing capabilities, i.e., one printer connected to the network can serve multiple users on that network. The combination of these features can facilitate a remote learning model that provides complete access to the textual and graphical (flow charts, graphs, molecules) information to visually impaired students over the World Wide Web. At the end of Phase I, the project will deliver a single prototype that will serve as a base model for producing a set of second generation personal graphics embossers for field testing in Phase II.

Products: The project will develop a tactile graphics embosser capable of reproducing the tactile equivalent of black and white drawings and block graphics as well as Braille. The printer driver will reproduce any appropriate line or block graphics designed with Windows, Macintosh, or X-Windows programs and will automatically convert text fonts to user-selectable Braille or other representations. It will use stand-

ard Braille paper as well as plastic tractor feed sheets and, when commercialized, should cost no more than an inexpensive present-day Braille printer.

Contract Number: **ED98PO3530**

HandPC and Laptop Computer Customized to Accept Note Taker Software and Hardware

Project Director: Emmanuel, Dillip

Beginning Date: Sep 1, 1998
Ending Date: Mar 1, 1999

Microflip, Inc.
11211 Petworth Lane
Glenn Dale, MD 20769-2017
Voice: (301)262-6020
Fax: (301)262-4978
E-mail: microflp@microflip.com

Purpose: The basic concept of "Note Taker" is to use a note-pad to produce a record of notes taken by a volunteer hearing student for a deaf or visually-impaired student. Through technology, this concept can be greatly expanded and enhanced by combining voice recognition with scribble board and blackboard interfaces to transfer text and graphic information using the "cut and paste" feature. The "Note Taker" may be enhanced to edit and also make sketches for a word processor. The computerized "Note Taker" can combine most of the roles of telephony, video-telephony, Internet, and e-mail into a highly integrated laptop computer.

Method: Inclusion of hearing-impaired children in general education can be facilitated by integrating multiple functions into a single, highly portable "communicator" based on an off-the-shelf laptop computer. One selected student note-taker can serve several deaf as well as visually impaired students. NoteTaker's handwriting recognition feature can be used to convert script directly to text and graphics, ready for pasting into a word processor. Interfaces with high tech blackboards are currently in use in some classrooms. Voice recognition for direct voice to text conversion is also being used. "Text to Voice," which is used to read aloud the text on the screen along with any other relevant or useful sounds, is also available for pasting into a word processor.

Products: This computerized "NoteTaker" software/hardware will greatly reduce the need for interpreters and note-takers in schools, colleges, universities, and even corporate offices for "conferencing."

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*Contract Number:*ED98PO3536

Analog Devices to Teach Deaf Adolescents Decision Skills and to Aid their Career Planning

*Project Director:*Chinnis, Jr., James O.

*Beginning Date:*Sep 1, 1998
*Ending Date:*Mar 1, 1999

Decision Science Associates, Inc.
10980 Poplar Ford Trail
Manassas, VA 20109
Voice:(703)754-0284

*Purpose:*This project will test the feasibility of developing a computerized device to teach decision-making skills to deaf adolescents in order to improve their career and other decisions.

*Method:*The device corresponds to a decision analysis procedure which evaluates multiattribute options as a sum of attribute scores, weighted by importance. To avoid cognitive difficulties in working with numbers and complex verbal rationalizations, an exact graphic analogy is provided by a "sum of boxes" picture which represents the desirability of each option as the combined area of a set of rectangles. A computer prototype decision aid will be developed and its impact on adolescent career and education decisions assessed by pilot experiments. The project builds on previous experience in cognitive psychology, decision analysis, and deaf education.

*Products:*Anticipated results include the demonstrated feasibility and effectiveness of a computer-assisted instructional aid to teach and assist with deaf adolescent decision-making. Other anticipated results include insights into the design of such aids for persons with other communication-related disabilities.

*Contract Number:*ED98PO3546

A Computer Program to Emulate TTY Communication

*Project Director:*Jensema, Carl J.

*Beginning Date:*Sep 1, 1998
*Ending Date:*Mar 1, 1999

Institute for Disabilities Research and Training, Inc.
2424 University Boulevard West
Silver Spring, MD 20902

*Purpose:*Phase I of this project will develop a simple communications program to demonstrate the feasibility of using standard personal computers to communicate with TTYs using software alone, rather than requiring the purchase of special equipment.

*Method:*Because of advances in computer software technology, it is now possible to emulate TTY communication on a personal computer using software alone. Rather than generating tones using special hardware, the needed tones for each Baudot character will be stored in audio waveform files and transmitted as needed. Similarly, tones being received will be identified using audio pattern recognition techniques. A personal computer with this software will be able to communicate with the TTY equipment currently used by the Deaf community.

Products: It is anticipated that Phase I will clearly show that a computer program can be designed that will allow a standard personal computer to communicate with TTY equipment. The result will be a major expansion of telephone communication for deaf people.

Contract Number: **ED98PO3705**

Wearable Assistive Interpersonal Communications Systems for Sensory and Cognitively Impaired Workers

Project Director: Linn, Norman A.

Beginning Date: Sep 1, 1998
Ending Date: Mar 1, 1999

Humanitas, Inc.
3416 Olandwood Court, Suite 208
Olney, MD 20832

Purpose: This project will develop a functional apparatus of a pre-assembled, user-ready, wearable, multimodal, Interpersonal Communications System (ICS). This ICS will facilitate access to spoken and written language for sensory and cognitively disabled workers in the retail and clerical industries.

Method: The structural design will allow the user freedom of movement by virtue of its wireless, lightweight, portable, and ergonomic design. Augmentative and assistive communications technology specifications will conform to criteria based on empirical data. The ICS will: 1) establish parameters for optimum internal systems compatibility and 2) demonstrate portability and ergonomic design in a polymodal speech to text/text to speech software and hardware configuration. The ICS is designed to be worn by the user. It will epitomize conservation of weight and equal distribution of mass for optimal load bearing. The configuration will afford the user comfort, independence, and mobility while communicating in the workplace. Workers with visual, hearing, or cognitive disabilities can overcome expressive and/or receptive barriers to communication by accessing one of eight model voice-recognition and optical character recognition (OCR) software configurations.

Products: During Phase I, a functional apparatus of the ICS will be developed and an analysis will be completed of the integrated system consisting of software, hardware, and housing. In Phase II, a working prototype of the ICS will be developed and tested. The efficacy of the ICS will be demonstrated in an open environment, i.e., a retail training environment for use by members of the target group. Potential commercial applications include product sales to organizations that place individuals with sensory and cognitive disabilities into private sector employment; organizations with primary responsibility for assessing, recommending, and purchasing accommodations for individuals with disabilities; and federal agencies that share collateral responsibility for training disabled workers.

Contract Number: **ED98PO3710**

Visual Biofeedback Training for Speech Skills Maintenance

Project Director: Byran, Steven R.

Beginning Date: Sep 1, 1998
Ending Date: Mar 1, 1999

Language Vision, Inc.
1820 E. 17th Street, Suite 120
Idaho Falls, ID 83404

Purpose: In the absence of normal aural feedback, the speech skills of individuals who become deaf in adulthood deteriorate over time, unless they are periodically retrained. Voice Prism software under development by Language Vision Inc. (LVI) provides an intuitive, real-time, acoustic-based, visible representation of speech sounds for learning these skills. It allows visual access to the nature of speech, and fosters an awareness of the orosensory cues needed for the accurate vowel productions necessary for intelligible speech. This project will extend this software with a real-time high-resolution spectogram capability to provide enhanced visualization of consonant information to supplement the existing displays. The ultimate goal of this project is to produce products and technologies that provide self-directed, independent learning of speech by individuals with hearing impairments.

Method: The LVI approach represents vowel articulation using intuitive colors and animated graphical tongue and oral cavity representations derived from the speech signals and displayed in real-time. The existing algorithms will be extended to produce laboratory prototype software that will run on a standard multimedia personal computer. The addition of spectographic capabilities is essential for training in which vowels and consonants are represented in the context of words, phrases, and sentences. Such connected speech training is needed to improve intelligibility in real-life situations. The efficacy of the software will be evaluated to compare the outcomes of vowel production training with traditional (non-instrumental) methods vs. those resulting from training with the enhanced software application. The efficacy study will determine whether visual models and feedback enable hearing-impaired children to learn to accurately produce vowels more rapidly than with traditional methods. It is predicted that children who receive training with the enhanced LVI software will make more rapid gains in vowel production and generalize their learning to unpracticed words to a greater extent than peers who receive traditional intervention. This study will also afford opportunities for participating speech-language pathologists to offer their suggestions for software modification based on clinical observation and experience.

Products: The speech training software will allow for active learning of speech skills and provide a cost-effective means of speech improvement and maintenance. Subsequent Phase II work will further extend the representation of consonant and vowel features in novel yet intuitive ways and refine a system for automatically providing an evaluation of the student's progress. Other commercial applications of this technology include accent reduction for English Speakers of Other Languages (ESOL), speech pathology tools for use in the treatment of specific pathologies, and foreign language pronunciation software.

Contract Number: **ED98PO3737**

SmartVoice: An Intelligent Sound Field System for the Classroom

Project Director: Lederman, Norman

Beginning Date: Sep 1, 1998
Ending Date: Mar 1, 1999

Oval Wind w Audio
33 Wildflower Ct.
Nederland, CO 80466R

Purpose: This project will develop, validate, and commercialize the first intelligent Sound Field System, called SmartVoice. SmartVoice will be designed to enhance the intelligibility of teachers' voices for the benefit of students with mild unaided hearing losses or attention deficits and normally hearing students as well. It will minimize problems with current Sound Field Systems: howling feedback, inappropriate gain settings, and operational difficulties.

Method: SmartVoice will include a proprietary amplifier that continuously monitors ambient noise levels in the classroom, automatically making adjustments to the system's gain in order to maintain a preset optimal signal-to-noise ratio irrespective of changing environmental conditions. SmartVoice will also automatically suppress feedback, adjust frequency response, regulate sound levels, and notify the teacher of inappropriate settings.

Products: Phase I will result in laboratory and initial test site validation of specific technologies and techniques relating to the automatic adjustment features of the SmartVoice Sound Field System. Phase II will result in technical refinements and large scale field testing of the SmartVoice System, culminating in commercialization of the product through Oval Window Audio's existing production and distribution channels.

Contract Number: **ED98PO3786**

Development or Adaptation of Innovative Technologies to Enhance Learning and Development for Individuals with Disabilities of All Ages—Low-Incidence Disabilities

Project Director: Follansbee, Sari

Beginning Date: Sep 1, 1998
Ending Date: Jan 31, 1999

Universal Learning Technology
39 Cross Street
Peabody, MA 01960

Purpose: This project will study the use and effectiveness of Universal Learning Technology's Network Learning System (NLS) with students who have low-incidence disabilities with a high need for support and will use that information to design and develop the next release of the system (in Phase II) which will include the supports required by those students.

Method: Universal Learning Technology (ULT) will conduct a "Tools and Supports Investigation" which will focus on informal use of the NLS in relation to preferred tools and accommodations of people with relatively low-incidence and high-need disabilities such as blind/low vision, deaf/hearing impaired, or orthopedically/motorically impaired. Observations will be made of the learning needs of these populations to define requirements for additional NLS functionality as well as accommodations for third-party prod-

ucts. The resulting information will be used to design and develop the next release of ULT's Network Learning System (Phase II) which will include the supports required by those students.

Products: This research will result in specific universal design recommendations for NLS to broaden learning potential. The challenge is not merely to evaluate and recommend a list of access features, but to recommend how such access capabilities can be integrated into a learning environment that is simple, engaging, and supportive for all learners — a universally designed learning network. The results of the Phase I analyses will enable ULT/CAST to produce several summaries which address the central research questions in preparation for Phase II NLS modifications, with the ultimate product bringing together course resources, learning tools, collaboration, communication, and presentation opportunities in one system for the higher education marketplace.

Contract Number: **ED98PO3860**

Development or Adaptation of Innovative Technologies to Enhance Learning and Development for Individuals with Disabilities of All Ages—High-Incidence Disabilities

Project Director: Follansbee, Sari

Beginning Date: Sep 1, 1998
Ending Date: Jan 31, 1999

Universal Learning Technology
39 Cross Street
Peabody, MA 01960

Purpose: This project will study the use and effectiveness of Universal Learning Technology's Network Learning System (NLS) with students who have high incidence disabilities and differences, and will use that information to design and develop the next release of the system (in Phase II) which will include the supports required by those students.

Method: Universal Learning Technology (ULT) will conduct a Course Trial, which will focus on the use of the NLS as an integral part of an Introductory Psychology course at Northeastern University. The NLS provides both a comprehensive information delivery system and a supportive learning environment that helps students develop core competencies including reading, studying, and presenting major themes of a course. Issues of universal design will be investigated with regular education students and relatively high-incidence and moderate need students such as those with learning disabilities and English as a second language.

Products: Phase I will result in specific universal design recommendations for NLS to broaden the learning potential for students with disabilities. The challenge is not merely to evaluate and recommend a list of access features, but to recommend how such access capabilities can be integrated into a learning environment that is simple, engaging, and supportive for all learners — a universally designed learning network. The results of the Phase I analyses will enable ULT/CAST to produce several summaries which address the central research questions in preparation for Phase II NLS modifications, with the ultimate product bringing together course resources, learning tools, collaboration, communication, and presentation opportunities in one system for the higher education marketplace.

Contract Number: ED98PO3913

Real-Time Teacher Speech Recognition and Information Display for Students with Hearing Disabilities

Project Director: DiTucci, John P.

Beginning Date: Sep 1, 1998
Ending Date: Mar 1, 1999

Applied Sciences Laboratory, Inc.
P.O. Box 21158
Albuquerque, NM 87154

Purpose: This project will develop a capability for computers to recognize partially structured speech as spoken by an instructor in a classroom, and will present the recognized speech to students with hearing disabilities in the classroom in real-time. The presentation of the speech will provide the student with more information than is available from current speech recognition systems. The additional information would include such features as: pace of the speech, tone of the speaker, and other information that would provide the most realistic classroom experience for hearing-impaired individuals.

Method: The project will develop capabilities to handle many of the disfluencies in partially structured speech, and develop methods of presentation to increase students' learning and improve their integration into a regular classroom.

Products: The research will result in a complete, functioning classroom speech recognition and display system. The testing of the system will provide valuable information to improve further the recognition and display. The implications of the approach point toward tailoring and use of the system in other environments such as presentations, meetings, or general TV/movie captioning where partially structured speech is the dominant mode of communication. Potential commercial applications include any activity where a speaker is making a presentation and individuals with hearing disabilities could be present in the audience. Additionally, real-time captioning of television or radio talk shows, speeches, or news presentations could be performed. With additional development, the system could be adapted to process spontaneous speech in certain conversational or entertainment environments.

Contract Number: HS96013001

Institute to Improve the Quality of Technology, Educational Media, and Materials for Individuals with Disabilities

Project Director: Carnine, Douglas

Beginning Date: Sep 30, 1996
Ending Date: Sep 29, 2001

University of Oregon
National Center to Improve the Tools of Educators
Institute for the Development of Educational Achievement
5219 University of Oregon
Eugene, OR 97403-5219
Voice: (541)346-5131
Fax: (541)683-7543

Purpose: To apply national leadership and achieve widespread, long-term, and systemic changes that will improve the quality and effectiveness of technology, educational media, and materials (TMM) for indi-

viduals with disabilities. To encourage the appropriate development of TMM and inform decision makers about the acquisition and use of TMM to enhance outcomes for students with disabilities.

Method: The Institute will build a network of partnerships to support quality TMM and their appropriate use, create an infrastructure for developing and using quality TMM, and implement the infrastructure to build capacity for developing and using quality TMM. These goals will be realized through partnerships with governmental groups, the education profession, and external groups. The Institute will use a social marketing approach to recruit new partners and to educate the public and decision makers. Additional approaches will include introducing incentives for development and use of TMM; influencing revisions in the adoption process; and increasing capacity regarding TMM for publishers, end users, and researchers.

Products: Products will include: (1) prototype content standards prepared for California; (2) a research review of experimental studies of pedagogy in mathematics and reading; (3) procedures for consolidating, refining, and field-testing a model for identifying quality TMM and its appropriate use; and (4) procedures for consolidating, refining, and field-testing a model for identifying replicable high performing schools that appropriately use an array of quality TMM. Other products will be developed in conjunction with NCITE partners.

Contract Number: HS97022001

Center to Link Local School Districts with Information and Support on the Use of Technology, Educational Media, and Materials

Project Director: Zorfass, Judith

Beginning Date: Sep 30, 1997
Ending Date: Sep 29, 2002

Educational Development Center, Inc.
55 Chapel Street
Newton, MA 02158
Voice: (617)969-7100

Purpose: The goal of the Center to Link Local School Districts with Information and Support on the Use of Technology, Educational Media, and Materials (TMM) is to connect urban schools districts to available and relevant information and support on the effective use of TMM to: identify their needs and formulate plans based on those needs; access information and support in a coherent way that is closely aligned to those needs and plans; and develop the capacity to monitor, document, and evaluate the outcomes.

Method: The Center will first identify and assemble all of the entities that can provide relevant information and support to the school districts: a community-based resource group, a national resource bank of experts, and Dept. of Education-supported projects that provide training, technical assistance, materials, and resources. Second, the Center will create mechanisms and processes that identify the information and coordination with the needs of the sites.

Products: Center staff will: help design tools and procedures to carry out needs assessments and guide urban districts in forming action plans; utilize effective strategies to identify available and relevant information and support; create new information and support opportunities when needed; facilitate the development of a comprehensive plan to ensure that each district has access to necessary information and support, either within its district or in cross-district venues; create a blueprint to document all information and support activities, describe their impact, and share lessons learned with the wider field; guide districts to monitor and evaluate their own work and the work of the Center.

Contract Number: **RW97077006**

An American Sign Language/English Dictionary on CD-ROM

Project Director: Jensema, Corinne K.

Beginning Date: Sep 30, 1997
Ending Date: Sep 29, 1999

Institute for Disabilities Research and Training, Inc.
2424 University Boulevard West
Silver Spring, MD 20902

Purpose: Phase II of this project will create an American Sign Language (ASL)/English Dictionary on computer media.

Method: Most so-called sign language dictionaries are actually vehicles for teaching sign language vocabulary. This project will develop something quite different, a dictionary which, among other things, identifies a sign and its meaning based on how the sign is made. In Phase I, 20 signs were selected, and each sign and its definition were videotaped and captured on a computer file. A computer multimedia program was developed to utilize the database. The program allowed users to define signs or spell English words and obtain: 1) the word in English and ASL, 2) definitions in English and ASL, 3) an audio rendition of the word, 4)a picture of the concept, and 5) spell- check and sign-check features. In Phase II, the software will be thoroughly field-tested and revised. The database will be expanded from 20 to approximately 2,000 signs/English words.

Products: Phase II will result in complete development of a sophisticated, computerized ASL/English dictionary of approximately 2,000 signs.

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